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ABSTRACT

A study of 5,085 University of Pennsylvania 1964-65 graduates twelve to thirteen years after graduation showed that many individuals have the capacity to move across occupational boundaries and have done so. Graduates were from twenty-three different schools not including medical, law, dental, and veterinary students. Four instruments were developed: a pilot questionnaire to test the basic Job Change Questionnaire, a short form for "non-respondents," and the Radical Change Questionnaire used for supplementary followup with selected individuals. Findings showed that some moves have been reactions to advantageous career opportunities which arose; others were for self-actualization. The study also showed that the concept of expected "career track" for a given educational program is too narrow. Many different types of careers can stem from a given education or initial work experience. The critical factor appears to be the interplay of the individual personality with education, occupational experiences, and industrial and physical work milieu over time. Evidence produced by the study indicates that the multi-track career is more prevalent than indicated in the literature and that the majority of graduates who have made radical shifts in their occupations do not regard this as aberrant behavior, citing continuities between the occupations they left and those they entered. (KC)

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THE EXTENT AND NATURE OF VOCATIONAL CHANGE AMONG COLLEGE GRADUATES: 1964-65 TO 1977

by
The Human Resources Center
The Wharton School
University of Pennsylvania

Howard E. Mitchell, Ph.D.
Director

March, 1980

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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PROJECT STAFF

Howard E. Mitchell, Ph.D., Director
Ruth Prywes, Ph.D., Co-Project Coordinator
Diana Robertson, Ph.D., Co-Project Coordinator
Nadine Mitchell, Bibliographer

NIE Student Research Assistants

Douglas E. Becker
Carole Davidov, B.A.
Maxine E. Davis, B.S.
Thomas Huang, B.A.
Monica Kuo, B.A.
Peter A. Lazzopina, B.A.
Victor Levine, B.A., M.A., Ed.M.
Donna Morea, B.A.
Harold Ognelodh, B.S.
Mani Poola, B.E., M. Tech.
Seetharama K. Shastry, M. Tech.
James Smith, B.E.
Kathryn A. Szabat, B.S.
Thea Williams, B.S.

Project Consultants

James E. Piereson, Ph.D.
Julius Jahn, Ph.D.

Project Secretaries

Jeannette L. Lewis
Linda J. Pisa

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Howard E. Mitchell, Ph.D., Director
Ruth Prywes, Ph.D., Co-Project Coordinator
Diana Robertson, Ph.D., Co-Project Coordinator

The Human Resources Center
The Management Department
The University of Pennsylvania

March, 1980

Chapter I

Introduction

In the 1960's we witnessed the continued expansion of the educational system in the United States with new educational modes being made available and teacher resources severely strained. But with further rapid changes in labor market demand the teacher shortage of the 1960's was matched by a teacher surplus by 1973 and 1974. Following Sputnik many college graduates made or switched their career plans into engineering and technical fields. There were expansive opportunities in the aerospace industry in the 1960's with thousands of college graduates opting for jobs in this field. Some found that by the early 1970's opportunities in aerospace had dried up and thousands of professionals on the West Coast found themselves in unemployment lines.

The above illustrates the confusion which surrounds career preparation or job-educational choices for the college graduate in the turbulent last two decades. It is in this context that this study of the vocational mobility of 1964-65 graduates of a large urban university was conceived and implemented.[1] The project staff of the Human Resources Center (HRC), The Wharton School of the University of Pennsylvania, desired to investigate the extent and nature of vocational change experienced by a college population that had had an opportunity to be in the labor market from 10 to 15 years. Moreover, we had interest in determining patterns of vocational change and to identify those who had made radical shifts in their work histories. We were especially interested in noting with this latter group of "radical changers," the contribution of education or training.

It was recognized that the process of changing vocations and the individual's perceptions of such changes encompasses a large number of interrelated variables. Borrowing from a general schemata developed by Kelley (1974) to explain organizational behavior, Figure 1 is a systems model showing the variety of factors and their relationships which affect the individual and his or her career development.

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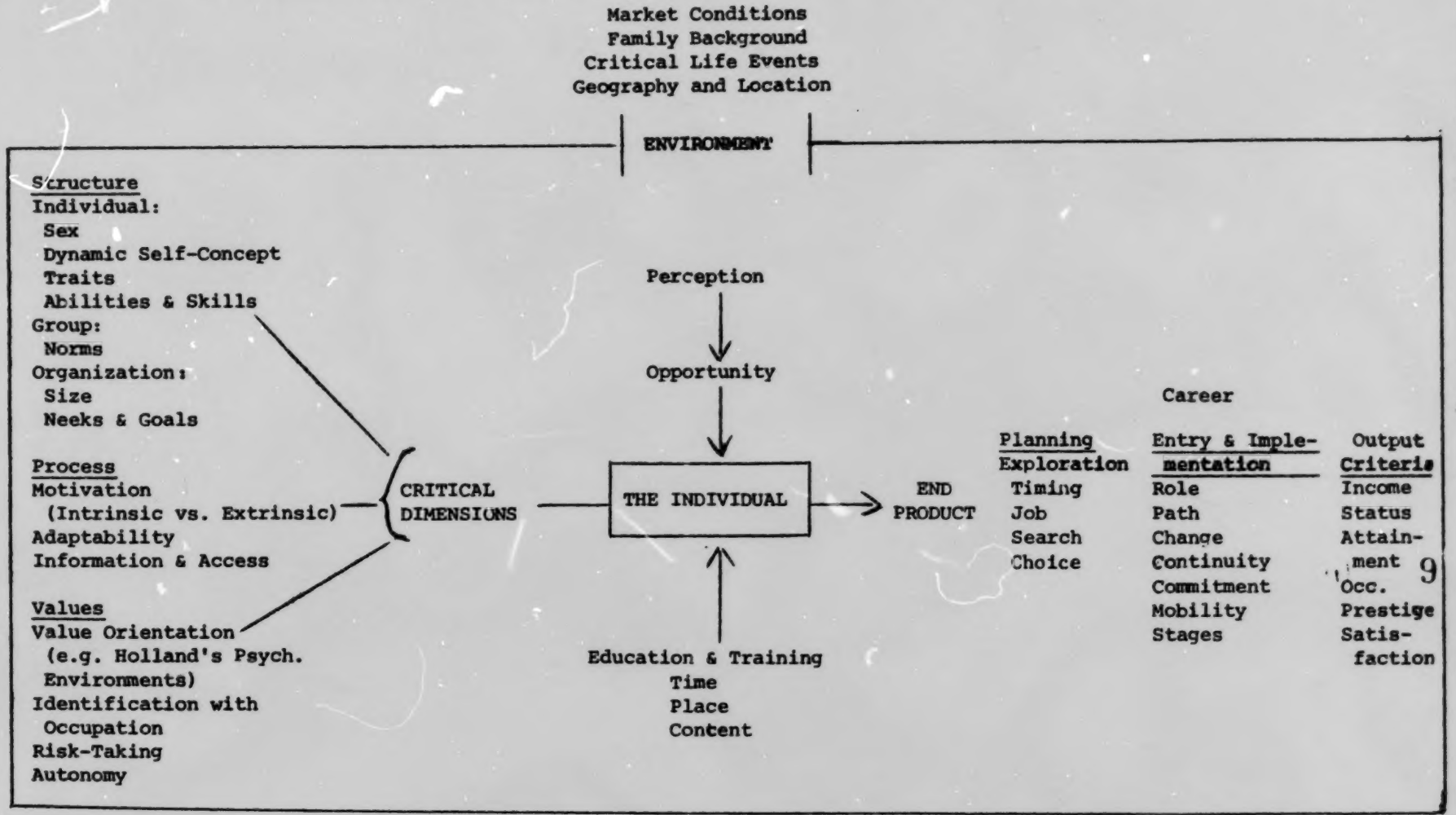
[1]The authors are grateful to the National Institute of Education which sponsored this research as part of a grant competition research program in the area of occupational change and career mobility. The authors and not NIE are solely responsible for all statements made in this report.

Figure 1

SYSTEMS MODEL FOR FACTORS AFFECTING THE INDIVIDUAL AND CAREER DEVELOPMENT



As indicated in Figure 1, the focus in this study is upon the experiencing individual and his or her post-hoc reports of their work histories and factors which have influenced choice, timing, location and the content of work, the need and expectation of additional education and training, the impact of both internal factors (e.g., individual attributes, motivation) and external issues (e.g., market conditions, life events, etc.).

Although not every factor shown in Figure 1 is dealt with in this research, this conceptual frame of reference was developed to guide the research team in understanding the complexity of issues involved and their interdependencies. It seems desirable to have a look at the big picture. Indeed if the findings of research on work and education is to have implications for further research on the optimal timing of vocationally oriented education in the life work cycle of individuals and suggest modification of the practices of educational and vocational institutions, it must be viewed at this molar level.

The challenge of this type of research was to design a methodology which would allow for the collection of data complex enough to be a value in our search for answers to the multifaceted issue of career development and simple enough to administer. We anticipated the difficulties and demands which we placed upon the college graduates in our sample and acknowledge our gratitude to them. The problems faced in responding to our initial questionnaire was best expressed in a letter from one female subject written in beautiful calligraphy. She wrote:

"June 4, 1978

Dear Dr. Mitchell,

I have attempted to complete this questionnaire twice, but despair of ever doing so. My experiences have been so complicated and varied to set down neatly.

Your inquiry is primarily concerned with the relationship between education and a job. For me, no such simple relationship exists. Education does have to do with my work which is painting, the fine arts. But neither of those has much to do with my jobs, i.e., those things I do to support myself. Job-wise, I have been a calligrapher, a store owner, a free-lance designer, a waitress, a paste-up and mechanical person, a teacher (both nursery school and adult education), a pre-school director, and even a factory worker in a sardine plant.

The job changes were voluntary, with little concern for labor market conditions, and sometimes, they were drastic in nature.

Sincerely yours,

_____ _____"

This letter also suggests the varied job histories of many highly mobile college graduates who shared their experiences with us. In order to understand what is normal career progression versus radical career change in such a population three specific objectives were designed and followed in this investigation.

Chapter II

Study Objectives

The overall objective of the study was to develop information on aspects of labor mobility and drastic vocational shifting among college populations which would contribute to decision-making in relation to such issues as types of education to receive priority funding, preferred timing of vocationally oriented education in the career life cycle of college populations, the types of institutions most helpful in continuing education, the formats in which "second" education is being offered, the relative value/need for subsidization of initial and latter education, and the special problems of entry and re-entry into the labor market. It was the intent of the study to provide detailed data on how college populations have maintained employment and negotiated the radical vocational changes often necessary (or desired) in the altering, shifting labor market of the mid-1960's and the 1970's.

The major objectives systematically addressed in the study were:

1) To determine, among a population of college and university graduates of twelve to thirteen years ago, the extent and nature of vocational change experienced.
2) To demonstrate patterns among the number of changes made, the dimensions of those changes, and respondents' perceptions of reasons for change; to account for the pattern by respondent demographic and educational characteristics.
3) To provide detailed description of individuals designated as "radical changers"; to reconstruct complete job histories, vocational changes made and perceived reasons for them, education or training undertaken to effect drastic change; to examine the role of educational institutions in facilitating or obstructing vocational transition.

Chapter III

Methodology

A. Population

The sample for the first questionnaire (Job Change Questionnaire) is comprised of University of Pennsylvania graduates of the classes of 1964 and 1965. A number of factors which have affected occupational opportunities of college graduates make this population particularly fertile for examining vocational change. Shrinking opportunities for persons with non-specific training, overly high academic credentials, and levels of specialization in fields no longer in demand, necessitate the search for new career opportunities by many graduates. How such persons have made transitions, and how they have acquired the skills and credentials necessary to do so, have important implications for educators and policy-makers. Questions about the liberal arts background as "preparation for life" can be investigated. At the same time, individuals with degrees beyond the baccalaureate are included to determine if they have had to make fewer occupational adjustments. It is commonly assumed that graduates in fields of more specific skills and skills which are in greater demand will follow predictable and stable career patterns: however, there is presently no evidence to support this assumption.

The period of twelve to thirteen years after college graduation was deliberately chosen to allow time for vocational changers to "settle down", i.e., to go beyond early changes identified with a period of "shopping around".

A further argument for studying adult populations is the need for examining the responsiveness of institutions to adult needs. "Second starters" have problems related to opportunity costs of education, need for subsidization of education which is not readily available to their group, delivery of educational services in a manner which increases accessibility to working persons, and, especially, credential requirements difficult for persons removed from school to meet. Information on the kinds of institutions utilized by "radical changers" and indications of "bendings" of institutional ways should be of considerable interest for purposes of policy-making.

Graduates from the following schools were included:

College of Arts and Sciences
Graduate School (Doctor of Philosophy)
Wharton Graduate School (Master's)
Extension School (Undergraduate)
Graduate Architecture
Graduate City Planning
Graduate Fine Arts
Graduate Landscape Architecture
Education
College of General Studies
College for Women
Dental Hygiene
Physical Therapy

Occupational Therapy
Medical Technology
School of Social Work
Social Work (Doctor's Degree)
School of Nursing
Associate Degree (Wharton Evening School)
Wharton School (Bachelor's Degree)
Electrical Engineering
Graduate Electrical Engineering
Graduate Mechanical Engineering

Graduates of the medical, law, dental, and veterinary schools were not included in the sample. Furthermore, a number of graduates who are currently living in foreign countries were excluded. The sample totaled 5085, 100 of whom were selected as pilot participants. Of the remaining 4985 who received the Job Change Questionnaire, 1505 were women (30%) and 3580 men (70%).

B. Instruments

A total of four separate instruments were developed in the course of the study:

1) Pilot Questionnaire
2) Job Change Questionnaire
3) "Non-respondent" Short Form of Job Change Questionnaire
4) Radical Change Questionnaire

In anticipation of the first round questionnaire (Job Change Questionnaire) we developed and tested a pilot instrument. The most important consideration in its construction was devising an effective means of eliciting detailed life, educational, and work experiences from the respondents. A number of questionnaire instruments from previous studies utilizing such information were studied. Work history formats were particularly examined for their succinctness in capturing essential information.

An important objective of the pilot study was testing of this instrument. Respondents were apprised of the preliminary nature of the questionnaire and asked to comment on its clarity and salience to their experiences. Follow-up phone calls to non-respondents also queried their reaction to the questionnaire's form. On the basis of these inquiries, we were able to conclude that the overall instrument was too long, and that certain items were confusing, requiring clarification or elimination. The Job Change Questionnaire (JCQ) thus closely parallels the pilot, but is shorter. Because of this similarity in the questionnaire instruments, information gained from the pilot participants in the study was included in the overall JCQ results.

The JCQ is divided into the following sections: Background Information, Educational History, Work History, Work Experience, Career Experiences and Development, and Further Information About Yourself (demographic data); the most important of these are the work history and

the educational history. The questionnaire is designed to elicit considerable information in these two areas. Additional major portions of the questionnaire include demographic information, timing of important life events (e.g., marriage, birth of a child), attitudes toward education as preparatory for a career, and salient factors in making job changes.

The "non-respondent" short form of the JCQ includes pieces of information considered central to the research questions under investigation. The purpose of the form is to provide a comparison of respondents and non-respondents to the JCQ in order to determine if any systematic pattern of non-response occurs. The questionnaire thus asks for a greatly abbreviated work history which can be used to identify any radical change that has taken place. Demographic, educational, and income information are also included for comparison purposes. The attitudinal measures of the JCQ have been omitted in this study because of time and budgetary limitations. Thus, respondents and non-respondents can be compared on the following dimensions: sex, marital status, geographic location, amount of education, number of job changes, number of radical changes, and income. It was not necessary to repeat this separate questionnaire process for the non-respondents to the radical change questionnaire, since information gleaned from the job change questionnaire could be used to examine possible response biases.

The Radical Change Questionnaire (RCQ) is concerned with one particular radical change made by the respondent and his or her experiences in making that change. Thus HRC sent this questionnaire to a respondent pinpointing the specific radical change of interest. Respondents were asked to complete the questionnaire for that particular change, regardless of their feelings that some other change might have actually seemed to them more radical, or more interesting, or more meaningful. The RCQ does allow respondents to express those opinions, but asks for information only about the designated change. The radical change instrument is divided into several sections: Making Your Occupational Change, Transferability of Skills and Abilities, Career Investigation, Education and Occupational Change, Experiences with Educational Institutions (the blue sheet portion only answered by those obtained, or wished to obtain, additional education as part of their radical change process), and Concluding Thoughts. The questionnaire taps respondents' perceptions of the radical nature of the change, expectations for the change, motivations in making the change, skills and abilities used in making the change, and the role of additional education in the change process. Many of the questions are open-ended to allow respondents the opportunity to relate the salient factors for them in making their occupational change.

C. Administration of Instruments

All four instruments were marked with a four digit identification number prior to mailing to provide confidentiality to respondents who did not wish to be identified by name. At the same time, the identification number was of course necessary for mailing of reminder letters and of the follow-up radical change questionnaire. Correspondence with respondents assured them of the confidentiality of the data, and our interest in aggregate rather than individual data.

1. The Pilot Study. One hundred persons were selected from the list of 5,085 University of Pennsylvania 1964-65 graduates for the pilot study. The objectives of the pilot study were threefold:

1) to test the rate of response to the questionnaire
2) to test the questionnaire instrument itself
3) from the returns, to assess more accurately the probable number of "radical changers" in the entire sample.

The first and third objectives led us to the use of a relatively large pilot study sample. The sample was not randomly selected. Instead, three criteria were used in selection:

1) people were chosen from each school
2) women were oversampled
3) people living in or near the Philadelphia area were oversampled.

The first two criteria should provide for a greater array of career experiences: the third allows us to follow readily up with selected respondents about their reaction to the questionnaire.

One hundred pilot questionnaires were mailed on February 22, 1978; a reminder letter was sent March 8th. In addition, 13 phone calls were made to non-respondents in the Greater Philadelphia Area. The calls were made to determine why individuals did not return the questionnaires. Generally, the length of the questionnaire deterred them from responding; thus efforts were made to reduce the length of the final questionnaire instrument. Three to four of the phone calls generated response to the questionnaire, although the calls were not intended for that purpose. A total of 46 pilot questionnaires were returned.

Pilot results indicate: (1) that the questionnaire was successful in eliciting the detail desired on respondents' educational and work histories, and other important life events: and (2) responses enabled us to refine the questionnaire. For example, a section on respondent's educational experiences outside of colleges and universities was dropped because it was too confusing to the respondent. Instead it was decided to ask this information in the second questionnaire wave (to radical changers) and to direct better the question to the particular information desired. In addition, responses enabled us to revise and sharpen particular questions which did not clearly elicit what we had expected.

2. The Job Change Questionnaire. Four thousand, nine hundred and eighty five job change questionnaires were mailed to addresses of alumni obtained from the Office of Alumni Relations, University of Pennsylvania on May 11 and May 12, 1978. Reminder letters were mailed May 22, June 2, July 5, September 1, and September 30, 1978. Fifteen hundred and sixty questionnaires were returned. In addition, 146 of the questionnaires (under 3%) were returned by the post office as "bad addresses." The Office of Alumni Relations reports that at least 10% of the addresses on its alumni lists are incorrect, so that the 3% return was suspiciously low. The rate of response to the job change questionnaire (including the 3% "bad addresses") is 35%, a figure believed to be more accurate.

Of the 1560 respondents, approximately 20 (1.2%) people returned the questionnaire but not the work history. Analysis of the work history was used as the basis for determining the existence of radical change; therefore, the questionnaires without accompanying work histories were not included in our reported results. Approximately 77 (4.9%) other respondents could not be included due to problems with their I.D. numbers, or other insufficient data.

3. The "Non-Respondent" Questionnaire. A sample of 100 non-respondents was randomly selected to receive the short form of the job change questionnaire. Fifty of these questionnaires were sent on July 26, 1978, and 50 on August 18, 1978, with reminder letters mailed on September 1, September 15, September 22, and October 4, 1978. The information was collected for 81 of the 100; 77 returned the questionnaire, and the remainder were queried by telephone.

4. The Radical Change Questionnaire. On March 9, 1979, 729 Radical Change Questionnaires (RCQ) were mailed. Of these, 582 were designated by our computer rules as having made at least one radical change (HRC-designated radical changers), and 147 were people who did not meet our computer criteria for radical change, but who indicated in the JCQ that they considered one or more job changes they had made to be radical or drastic (self-designated radical changers). The male-female breakdown is as follows: 413 (71%) male HRC-designated changers, 169 (29 %) female HRC-designated changers; 104 male self-designated changers, 43 female self-designated changers. Reminder letters were sent March 22, April 5, and April 18, 1979.

Four hundred and fifty-eight questionnaires were returned; this represents a response rate of 63 percent. However, the rate of return for the RCQ with usable data is 53 percent (390 with complete information out of 729 sent). This information is shown in Table 1 below.

TABLE 1

	HRC-Designated Radical Changers	Self-Designated Radical Changers
Male	413 Received RCQ 247 Returned RCQ 60% return	104 Received RCQ 43 Returned RCQ 41% return
Female	169 Received RCQ 86 Returned RCQ 51% return	43 Received RCQ 14 Returned RCQ 33% return

D. Major Variables

1. Occupational Change. The dominant variable of this study is occupational change. A respondent's detailed work history is the basis for assessing change.

A great deal of our findings center upon describing the nature and extent of vocational (or occupational) change. Therefore, several perspectives on what constitutes change are included:

1) Job change is defined as a change in job title which occurs in moving from a job held full-time for at least one year to a job held full-time for at least one year.
2) Employer change is defined as a change in employer which occurs in moving from a job held full-time for at least one year to a job held full-time for at least one year. If a respondent moves from Employer #1 to Employer #2, then back to Employer #1, then to Employer #3, he or she is considered to have made two employer changes.
3) Self-designated radical change is defined as any change in job title which occurs in moving from a job held full-time for at least one year to a job held full-time for at least one year, which the respondent perceives to be radical or drastic in nature.
4) HRC-designated radical change is defined as any change in job title which occurs in moving from a job held full-time for at least one year to a job held full-time for at least one year, which has been determined by means of HRC's computer "rules" to constitute a radical change.

Occupational change, particularly HRC-designated radical change, is usually treated in this study as a dependent variable. One objective of the research is the identification of correlates of occupational change.

2. Education. A second major variable (ordinarily treated as independent) is nature and extent of education. The type (e.g., undergraduate major, fields of study in graduate or professional school) and amount (e.g., number of degrees, highest degree received) of education are examined in conjunction with occupational change. In addition, the timing of education is important in relation to the occurrence of occupational change. A complete educational history provides the needed information for each respondent.

3. Life Events. Usually considered an independent variable, the occurrence and timing of certain life events (e.g., marriage, birth of children, geographical relocation) is correlated with the occurrence of occupational change. Respondents are asked to cite the month and year that each of a list of these life events occurred.

4. Acquisition of Skills and Abilities. Information from questions on the Job Change Questionnaire relates respondents' perceptions of where they acquired needed job skills and abilities. The areas focused upon are formal education, work experience, and volunteer work. The Radical Change Questionnaire asks for details about the nature and importance of transferable skills and abilities in making a radical change.

5. Motivations for Change. A number of questions on both questionnaires probe factors important to the respondent in making changes. The

Radical Change Questionnaire includes open-ended information about "expectations" for the changed-to occupation.

6. Future Educational and Occupational Plans. Respondents are asked to indicate anticipated job and employer changes and further education planned over the next several years.

7. Perceived Career Success. Job Change Questionnaire respondents rate their success in job satisfaction income, status, and promotability, while Radical Change respondents evaluate the realization of their expectations in making the radical change.

8. Career Investigation. The timing of decision-making about one's career and the amount of investigation undertaken in advance of that career are assessed.

9. Income. Respondents' individual and family incomes are examined for their relationship to occupational change.

10. Experiences with Educational Institutions in Making Radical Change. A separate blue sheet portion of the Radical Change Questionnaire asks those respondents who obtained or wished to obtain further education in conjunction with their radical change to describe their experiences with various aspects of institutions of higher education (e.g., admissions policies, financial considerations).

11. Perceptions of Dimensions of Radical Change. Radical change respondents were asked to state in an open-ended question why a particular change did or did not seem "radical" to them. Similarly, they also described what "common thread" they perceive to link their occupations held before and after their radical change.

12. Other Variables. Other variables measured in the Job Change Questionnaire, the Radical Change Questionnaire, or both, include: educational and occupational status of respondent's parents, occupational identification, perceived obstacles to future occupational change, the effects of possible discrimination and of non-job-related geographic moves, and perceptions about the pattern that their career has followed to date.

E. Coding Procedures

1. Job Change Questionnaire. Construction of the coding guide for the Job Change Questionnaire was initiated in conjunction with the receipt of completed pilot questionnaires. Data from the pilot study were particularly helpful in devising coding schemes for open-ended material. For example, one question asks if respondents have engaged in volunteer work, and if so, what skills they developed through that work. Lists of the skills mentioned were then aligned with several conceptual frameworks of types of skills to determine which framework is most appropriate for this specific question.

2. Work History. Coding procedures forthe Job Change Questionnaire were divided into several stages. First, the work history portions were

separated from the remainder of the completed questionnaires, and were coded. The amount of detail and the time spent in coding one work history (approximately 20 - 30 minutes) suggested that this be handled as a separate coding task. The work history was coded first because information from that history was needed as quickly as possible as a basis for the selection of the radical changers who would receive the second questionnaire.

The preliminary coding guide for the work history was finalized by testing its utility on approximately fifty questionnaires. Coding considerations which have been raised since the finalization have been discussed in meetings with coders and recorded in written addenda to the coding guide to assure coder consistency.

Meetings with the coders were held bi-weekly to supervise their work and to speed up productivity as much as possible. In addition, a series of conference judgments were initiated. In this format, the coders collectively code five cases; again this assists in achieving reliability and maintaining quality control.

DOT and SIC codes were thoroughly explained to the coders. Because of the special nature of this college educated sample, even the fourth edition DOT does not adequately cover some cases; in these instances the cases were set aside and conference judgments made later. DOT codes were used to group respondent job titles for later use in the computer definition of radical change. The groups used are the following:

Group 1:	DOTs 200-979	- Non-professional/managerial/technical
Group 2:	DOTs 090-099	- Education and related occupations
Group 3:	DOTs 162-188	- Administration/management, exclusion of Group 5
Group 4:	DOTs 001-199, not in groups 2, 3, or 5	- Professional/managerial/technical jobs not in education or administration
Group 5:	DOT 189	- Administration/management, not in Group 3; consultants; owners-proprietors, "free-lancers"

A random sample of ten completed work histories were assigned DOT and SIC numbers by each coder independently among the four coders who completed the work histories, the inter-judge reliability rate for DOT numbers was 89 percent and for SIC codes, 92 percent respectively.

3. Educational History. Development of the coding guide for the educational history included assigning code numbers to all majors and degrees offered at University of Pennsylvania in 1964-65. Because the educational experiences reported in the questionnaire are not confined to the University of Pennsylvania, additions to the original list were made, based on coding of the first 150 questionnaires.

Coder production records indicate that it takes about ten minutes to code an educational history. Most respondents report 3-4 educational experiences. Conference judgments and coding meetings on educational histories were held biweekly to answer questions and to assure consistency.

4. Remainder of Job Change Questionnaire. Once the work and educational history coding was completed, a decision was made to code only portions of the remainder of the job change questionnaire for all 1525 respondents. The entire questionnaire was coded for 900 respondents (the entire sample of HRC-designated radical changers, a matched number on non-changers, and some self-designated radical changers). For the remaining 625, questions on life experiences (marriage, birth of children, etc.), and income and demographic information were coded. This material was labelled Essential Information: combined with the educational and work histories, it provides a great deal of factual data about the sample of respondents. Not coded for all respondents is attitudinal data on educational experiences and job changes because of time and budgetary constraints.

5. "Non-Respondent" Questionnaire. The information obtained from the short form "non-respondent" questionnaire was coded in the same card and column numbers as that of the job change questionnaire. This format allowed for ready programming of base respondent and "non-respondent" data.

6. Radical Change Questionnaire. Development of the coding guide for the Radical Change Questionnaire was considerably more complex than that of the JCQ. Because many questions asked the radical changers were open-ended, the coding guide was first constructed on the basis of reviewing eighty completed radical change questionnaires, modified then subsequently tested on an additional twenty-five questionnaires, and then revised to its final form. The coders actively assisted in these development and testing stages, so when the time came actually to code the first questionnaire, they were thoroughly familiar with its coding guide. Conference judgment meetings were held biweekly to discuss any discrepancies among coders in their interpretation of the coding guide.

F. Data Analysis

1. Data Assembly. All data from the Job Change and Radical Change Questionnaires were keypunched and organized into individual data files which are accessible on The Wharton School DEC 10 System. These individual files have been checked for internal validity and card order, then merged into a common "master file" in which data for each of the JCQ respondents is organized in an identical format of eighteen, 80 column card images per respondent. In addition, data from respondents to the Radical Change Questionnaire is organized into six card images per respondent. Thus a RCQ respondent has a total of 24 card images.

Data on "non-respondents" (which were obtained using a short form of the questionnaire) has been organized into a separate data file.

2. Statistical Analysis. Data analysis was conducted using the SPSS package. For a period of several months, HRC leased a portable computer terminal and acoustic coupler in order to facilitate this analysis. Variable names and read formats were defined for the variables derived directly from the two questionnaires and a programming statement to generate the necessary computed variables. Descriptive statistics for all of the data from the two questionnaires constituted the first stage of the data analysis. As a second stage, all descriptive statistics from

the first questionnaire were generated according to sex and radical changer-non-radical changer status, and those from the second questionnaire according to sex. Finally, other cross tabulations of the variables were computed, and tests of significance (mainly chi square analysis) conducted.

3. Non-Response Analysis. In order to compare characteristics of respondents and non-respondents to the JCQ, a short Non-Respondent Questionnaire was developed.

One hundred such questionnaires were mailed to a random sample of non-respondents. The sample was stratified by sex to represent the proportion of males and females in the non-respondent population, 62 percent male and 38 percent female. Five follow-up letters urging participation were sent after the initial mailing. In addition, telephone calls were made to those in the sample living in the Greater Philadelphia Area.

Eighty-one short form questionnaires were returned, including those where the information was recorded by telephone interviews.

The first questionnaire addressed in our use of the Non-Respondent Questionnaire is that of radical change, i.e., are those respondents who are radical changers more or less likely to have returned the JCQ than non-radical changers?

The short form questionnaire included a work history portion asking respondents to list all job titles held and their dates. DOT codes were then assigned to these titles and the same criteria for establishing radical change, as those used in the JCQ applied. Of the 81 respondents, 20 (24.7%) have experienced radical change according to our computer-established definition. Thus 24.7 percent of the non-respondents are radical changers, and 37.3 percent of the respondents. On the basis of this information, it seems that radical changers are more likely to return the JCQ because their interest in the topic is greater than that of the non-radical changers. We can conclude that our percentage of radical changers is substantially higher than that of our overall sample.

A second question critical to the study is that of the amount of higher education obtained by JCQ respondents and non-respondents. Table 2 demonstrates the highest degree obtained for the two groups.

As Table 2 indicates some differences in level of higher education exist between respondents and non-respondents. Non-respondents are more likely to have completed a Master's degree or professional degree, while respondents are slightly more than likely to hold a doctoral level. These differences are not significant, however, and probably only reflect somewhat more interest on the part of the Ph.D. in this type of social science research.

Another possible response bias exists in the question of geographic location. It might be expected that those individuals living within a relatively short distance from the University of Pennsylvania would be more likely to return the questionnaire than those living further afield. As Table 3 illustrates, however, those do not prove to be the case.

TABLE 2

HIGHEST DEGREE OBTAINED

Highest Degree	Job Change Questionnaire Respondents N	%	Non-Respondents N	%
Did not complete BA/BS	23	1.5	2	2.4
Completed BA/BS	282	18.1	22	27.3
Completed Masters	606	38.8	37	45.7
Ph.D. program - No degree	56	3.6	0	0
Completed Ph.D.	274	17.6	5	6.2
Professional degree program - No degree	14	0.9	0	0
Completed professional degree	161	10.3	12	14.8
Completed Ph.D. and professional degree	3	0.2	1	1.2
No response	141	9.1	2	2.4
TOTAL	1560	100.0	81	100.0

TABLE 3

GEOGRAPHICAL LOCATION

Geographical Region	Job Change Questionnaire Respondents N	%	Non-Respondents N	%
New England	153	9.8	9	11.1
Middle Atlantic	858	55.0	43	53.1
East Central	82	5.2	3	3.7
West Central	39	2.5	2	2.4
Southern	181	11.6	11	13.6
Rocky Mountain	29	1.8	2	2.4
Pacific Coast	98	6.3	6	7.4
Hawaii-Alaska	4	0.3	0	0
Other than U.S. and No Response	116	7.4	5	0
TOTAL	1560	100.0	81	100.0

Instead, the greatest concentration of both respondents and "non-respondents" occurs in the Middle Atlantic region, with very similar patterns of distribution for the two groups occuring in other parts of the country.

Finally, the question of income is salient to the study. Are those individuals who respond to the JCQ likely to have a higher or lower income than non-respondents? One would predict that individuals with higher incomes, i.e., individuals who are more "successful" would be more likely to return the questionnaire. As Table 4 indicates, this is not necessarily true.

TABLE 4

INCOME

Category	Job Change Questionnaire Respondents N	%	Non-Respondents N	%
None	115	7.4	8	10.0
Less than $5,000	74	4.7	2	2.4
5,000 - 7,499	35	2.2	2	2.4
7,500 - 9,999	30	1.9	4	4.9
10,000 - 14,999	75	4.8	5	6.2
15,000 - 19,999	128	8.2	6	7.4
20,000 - 24,999	193	12.4	6	7.4
25,000 - 29,999	153	9.8	6	7.4
30,000 - 34,999	149	9.6	7	8.7
35,000 - 39,999	100	6.4	2	2.4
40,000 - 49,999	132	8.5	6	7.4
50,000 or more	268	17.2	16	19.8
No Response	108	6.9	11	13.6
TOTAL	1560	100.0	81	100.0

In fact, non-respondents are more likely than respondents to report incomes of $50,000 and above.

This non-response analysis thus indicates that the one important variable where differences exist between respondents and non-respondents is the incidence of radical change. Thus, in reporting our results on the incidence of radical change in this particular population, we must be reminded that the sample of our respondents to the JCO contains a disproportionate number of radical changers.

Chapter 4

Findings

A. Definition and Methodology of Radical Occupational Change

A wide variety of concepts about occupational change were reviewed and discussed by the HRC team and their project consultants. Special attention was given to the work of Spilerman (1977) and Hall (1976) who have recently reviewed theories of career development and change. In this study, however, we developed an operational definition for radical career change. We view such change as occupational shifts involving great differences in the tasks performed and/or the environment in which one works. This definition is based on both the literature review, team deliberations, and preliminary observations of trends in the work histories of the data set.

The operational model selected is similar to that common in mental health research in which aberrant or deviate behavior is defined as being those "left-over" behaviors which do not fit established normal categories of classification. Thus, characteristics of radical (i.e., aberrant) job changes are those defined as not included in definitions of "normal" careers.

1. The Normal Careerist. In defining the "normal career" we include in the one track career both those individuals who maintain the same professional identity while progressing through seniority on the same job, or laterally through change to more desirable jobs and those whose vertical career leads to administrative positions in the same occupation. For example, one type of normal lateral career is a teacher who moves to a more desirable teaching position. A teacher whose career is more vertical might have a career sequence as follows: teacher, assistant principal, principal, superintendent of schools. Persons moving from non-professional/managerial/technical positions into managerial positions are judged as having a normal career progression. One type would be the tailor who becomes an entrepreneur through opening his own shop; he is considered to be following a "normal" upward mobility path. Similarly a clerk who progresses to become a manager listed in the professional/technical/managerial category is another example.

For many people in the trades/services/sales/bench and other occupations, movement into an administrative or managerial capacity often represents normal career progression. Thus it is not necessary for the progression into an administrative, managerial, or entrepreneurial position to take place in the same field. The investment made in training is not tied to one industrial milieu. Examples might be a jewelry salesman who becomes manager of a dress outlet; a clerk in a wholesale business who becomes office supervisor in a data-processing firm.

Also considerable subjects move from non-professional employment into self-employment in the same or in a different field. Self-employment

of any type is sufficient for classification in the professional/ managerial/technical category. HRC does not consider such a move radical.

Movements into very different work settings per se are not considered evidence of radical occupational change because of the relative ease with which many professionals/managerials and technicals change industrial settings. Many instances of computer data personnel shifting between data-processing firms and manufacturing firms and/or real estate, banking, or investment houses are to be found in the data-set. In the data-set lawyers were often found to shift between law offices and real estate and investment firms. We only considered change of milieu of the work place as evidence of radical occupational change under certain carefully specified circumstances which are discussed later.

Because of technical considerations also discussed later, movements from technical to professional in the same field are considered as a normal career pattern. Architects, for example, by training begin their careers as draftsmen in architectural firms and gradually move to professional status. Nurses and technicians in the health field moving between these occupations is also classified as normal career progression, a decision based both on patterns observed in the data and DOT coding difficulties.

Prior to finalizing our concept of normal career and radical change, HRC staff noted a number of patterns of shifts between occupations and between industrial sectors. Examples are the movements of lawyers into finance, real estate, and banking mentioned above.[2] Thus, lawyers who move from law offices to investment houses, with the title broker or manager, are not considered to have made a radical change. Today, because of gross differences in DOT (and SIC) codes, such persons are counted as having changed occupations. Such a change would involve some change in concept of radical change since duties would seem to be different. However, since the change occurs so frequently radical change does not seem to be involved in the shift.

2. The Radical Changer. The radical changer is the subject whose work history does not fit the preceding description. The radical changer is defined as the subject whose work history is "disrupted" as opposed to being "orderly" (Wilensky, 1967), or "unstable" or "multi-trial" as opposed to "stable" or "conventional" (Miller and Form, 1949).

In operationalizing the definition of radical changer consideration was given to three major factors: (1) knowledge and understanding of occupational mobility; (2) the characteristics of the particular pool of respondents under study; and (3) the structure and contents of the chosen classification scheme, the Dictionary of Occupational Titles

[2] More work needs to be done to document patterns of movement between occupations and associated settings, as identified by DOT and SIC codes. If such patterns could be identified, then movements described by the patterns would be considered as part of a normal career track.

(DOT) codes (1977) in the professional/managerial/technical categories, supplemented by use of Standard Industrial Classification (SIC) codes (1972). A major limiting factor in the operational scheme developed has been the small number of job titles existent in the professional/managerial/technical category. Fine differentiation, therefore, is difficult. Lack of differentiation in code numbers between technicians and professionals in the same field also poses a problem.

Operationalization of our concept of the radical changer began by specifying groups which did not belong in the "normal" career category and who could be identified by DOT codes. From scanning the respondent pool for reported occupations, certain clusterings were identified and considered as "groups".[3] Thus, educators on all levels and associated professionals, administrators, and technicians constitute one group. Administrators and managerials also constitute a group. For reasons discussed elsewhere, one DOT code which encompasses a group of divergent job titles, DOT 189, constitutes a group.

The jobs which were to be considered in evaluating the work histories were further specified. Eligible for inclusion were substantial jobs, that is all jobs held full-time twelve months or more. It was necessary to eliminate part-time jobs from the analysis because of the large number of occupationally-unrelated jobs held by respondents before and during the years of their college and university education. While such jobs might be of interest in terms of possible influence on subsequent occupational decisions, their exclusion was necessary to show occupational relationship among the principal jobs in the career of each individual. A single exception was made to include academics who report working 48 months or more in academia on a part-time basis. This was done to provide for inclusion of a potentially important group of radical changers who conceivably spent a number of years trying to obtain an academic foot-hold and who finally moved to another field.

An exception to the requirement that a job be held one year or more was made for persons whose occupations customarily include fewer than 12 months. This was applied to the case of educators whose work-year was reported as nine months or more, but less than twelve.[4] Also included are persons in education-related occupations.

We exclude Military Service (DOT 378-SIC 971) equal to or less than 48 months as part of the careers of the population studied. This is relevant to the work histories of members of the Classes of 1963-65, many of whom served in the Vietnam War and some in the Korean War. Also excluded is service in the Peace Corps, in VISTA, or in other volunteer work.[5]

The following special cases were also excluded from consideration of radical change:

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[3]This was done for: (1) reasons of convenience, (2) the possibility that special insights pertaining to a large group might be obtained, and (3) because of problems related to the DOT codes.

[4]This is in line with Civil Service practice.

[5]No satisfactory means, using available DOT and SIC codes, was found by which these experiences could be eliminated by computer. In any further study this could be handled by assigning an unused DOT code to all volunteer experiences.

1) All movements between law clerk, attorney, and judge. The title law clerk presents a problem in that it always occurs in a public sector setting, and, when the occupant moves to private sector law practice, a radical change are indicated (a Type 3 change, explained later). Exclusion is achieved by collapsing codes for lawyer and judge into one DOT code (110).

2) Movements of "salespersons" or "sales representatives" (DOT codes 250-279) in or out of administrative and managerial positions (Group 3, described below) DOT codes 162-169; 180-188 or Group 5, DOT 189) unless accompanied by a change in SIC family. This was found to be necessary as DOT code designations of "salespersons" is not in keeping with HRC observations of the presence of such job titles in the job sequences of highly trained professional and managerial personnel in its data set. For example, many engineers or data processing people in the pool move into the "sales rep" title and then on to a vice-presidency. This problem could be dealt with in future studies by assigning unused numbers in the professional/managerial/technical category to professionals or managerials involved in the sales function.

3) Movements of nurses (DOT 075) to technician positions (DOTs 078-079) and vice versa.

4) Movements from all trainee, internship, social work placements, residencies, fellowships, and administrative internships when the change takes place in the same field. This rule can only be implemented manually at present.

5) Movement from medical residencies and internships (DOT 070) to teaching medicine (090).

6) Movements of the traditional "free standing" professionals from employee status to self-employment.

All physicians, dentists, veterinarians lawyers, accountants, architects, and certain other professionals were consistently coded by DOTs of their professions instead of as entrepreneurs or self-employed persons (DOT 189). This covers instances where doctors report titles as "president" of a private medical clinic or attorneys report job titles as "partner" or "co-owner" of a law firm or private practice.

We include as evidence of radical occupational change movements between job titles "school teacher" (091 or 092) and "counsellor" (045) on the observation that functions differ significantly.[6]

[6]Other considerations include the knowledge that different training and credentials are required. There is also a potential problem in failing to differentiate in that DOT code 045 also includes psychologist which involves highly differentiated functions and training.

For purposes of analysis, jobs held by subjects in the data pool were classified in five groups as follows:

Group 1. Jobs falling in the non-professional/managerial/technical category. These include jobs in clerical/sales work, the service occupations, agriculture/fishery/forestry and related occupations - processing, machine trades, benchwork, structural work, and other miscellaneous occupations. These occupations are identified by DOT codes 200 through 979. Remaining groups fall within the professional/managerial/technical category.

Group 2. Consists of jobs in the field of education (DOTs 090-099), teaching at all levels; including university and most education-related occupations (counselling is an important exception).

Group 3. The administrative specialties and managerial and officials positions fall in this group. They are included in DOT codes 162 through 169 and 180 through 188. Occupational titles in the purchasing, sales and distribution, and advertising management; public relations management: personnel administration management, and inspectors and investigators, as well as occupations in administrative specializations not elsewhere classified distinguish the category. DOT codes 162-169 include positions in both private and public sectors. Also included in this group are managers and officials not already included in the above titles. They are represented by DOT codes 180 through 188. The individual codes in this 180-188 series represent a breakdown by industrial sector, i.e., DOT code 180 includes managers and officials in agriculture/forestry/fishing; 181, officials in mining, etc. Managers and officials in public administration on all levels (federal, state, local, and international including activities in the legislative, judicial, and administrative functions, as well as government owned and operated business enterprises) are included in DOT code 188. However, some government administrators and managers bear other administrative codes, i.e., "prison warden" (DOT 187).

HRC has grouped these administrative positions because both professionals who move into managerial and administrative positions and professionals managers and administrators (especially people coming out of schools of business administration), once in management, normally move between job titles included in the occupational groups described. Thus, job title change, as reflected by change in DOT code within the ranges noted, represents normal career progression, not radical occupational shift.

Not included in this group are two sets of occupations listed by the Dictionary of Occupational Titles (1977), accountants and auditors (DOT code 160), and occupations in budget and management systems analysis (DOT code 161). These occupations, included in Group 4 described below, were excluded from the administrative/managerial group on the basis that a number of the job titles were those of free-standing professionals and others likely not to be a part of a career track in management. This decision, as well as the decision not to exclude certain other of the occupational clusters in the 162-188 sequence, is arguable and may be deemed arbitrary.[7]

Also excluded from this group of administrators and managers are executives whose DOT code is 189. This includes executives in highest management. The rationale for this decision is discussed below in the paragraph on Group 5.

Group 4. The fourth group of job titles includes all professionals/managerials/and technicals not included in the above three categories and not in Group 5. We include the large bulk of professional/technical job titles here. Illustrative of the groups included are occupations in architecture, engineering, and surveying (DOT codes 001-019); in mathematics and the physical sciences (DOT codes 020-029); occupations in writing (DOT codes 131-139); and occupations in medicine and health (DOT codes 070-079). These occupations run the range of DOT codes 001 through 199, with the exclusion of codes 090-099 (education); 162-188 (administrative-managerial occupations) and the occupations included in Group 5, DOT code 189. The majority of the occupations involved in this study fall into this group.

Group 5. For purposes of this study, HRC was obliged to treat job titles listed by the Dictionary of Occupational Titles under DOT code 189 ("miscellaneous managers and officials not elsewhere classified") separately. This was necessary because of the extremely polygot nature of the job titles included in

[7] It represents HRC's best efforts in making the DOT codes an operational research instrument for study of occupational mobility of professionals and managerials. It represents one major decision in a series of not entirely satisfactory decisions. The deciding criterion for such decisions was always how to best operationalize use of the codes to "fit" the ideosyncracies of our data set to our purposes.

this category. The 189 code includes top management positions, most especially "president" and "vice-president" in cases where codes for particular industries are not specified in the DOT index. The HRC data set includes many subjects in this group holding these two titles. However, this code number also includes job titles such as "consultant, professional and kindred workers," a category also well populated in this data-set. Another example of titles included under this code are "property investor in business services and real estate." For want of alternative codes, HRC used the 189 code listing for all subjects who were owners, and entrepreneurs, believing it to be the most appropriate of existent codes.[8] This created problems for the analysis of the data. Because top executives whose titles are not specifically included in an industrial field,[9] consultants, owners-proprietors, and all other self-employed subjects are represented by one DOT code (189), computerized determination of radical occupational change by DOT code alone is impossible. A number of the most interesting radical changers in the study population are subjects who have gone from professional/administrative positions into "self-employment" or "consultantships" which represent radical change.[10] To avoid losing these radical changers through insensitivity in the DOT code, we devised a method of "finding" them through use of SIC (Standard Industrial Code) "families". This scheme will be discussed later.

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[8] Excluded from this general rule are members of the "free-standing" professions, most prominant among them in this data pool are doctors, lawyers, architects, and accountants who practice independently or who have their own firms. In some cases doctors in the pool are owners of medical facilities (i.e., physician-entrepreneurs) but are nevertheless coded by profession.

[9] Some executives (and other) jobs carry the code of a particular industrial field; others do not. Many of these latter titles are coded "189". The industrial fields referred to reflect the industrial spectrum. They are: agriculture, forestry, fishing; mining; construction; manufacturing; transportation; communication; utilities; wholesale and retail trade; finance, insurance and real estate; service; public administration; and miscellaneous, not elsewhere classified.

[10] Examples are the attorney who became owner of a bakery firm; the finance officer who went into scenic design as a consultant; the assistant professor of anthropology who became a photographic consultant.

In summary, all jobs held by subjects in the data pool were grouped as follows:

Group 1: DOTs 200-979 - Non-professional/managerial/technical

Group 2: DOTs 090-099 - Education and related occupations

Group 3: DOTs 162-188 - Administration/management, exclusion of Group 5

Group 4: DOTs 001-199 - Professional/managerial/technical jobs not in Groups 2, 3, or 5

Group 5: DOT 189 - Administration/management, not in Group 3; consultants; owners-proprietors, "free-lancers"

3. Use of SIC Codes. As noted above, it was found advisable to utilize the Standard Industrial Classification (SIC) codes to supplement DOT codes in attempting computer identification of radical changers. The SIC codes were collapsed into nine "families" which represent the major fields in the industrial spectrum: agriculture, forestry, and fishing through public administration.[11]

The SIC "families" were used to "tease out" radical changers which were obscured by the insensitivity of DOT codes. For example, an aeronautical engineer (DOT 002) who became vice-president (DOT code 189) of a paper goods distribution firm would be construed as having made a radical occupational change because of drastic change of work environment, i.e., movement from manufacturing to distribution.

4. Defining the Radical Changer Operationally. To identify radical changers operationally, HRC established rules to delineate four types of radical change which emanate from movements among or between the above groups of occupations.[12] A hierarchy of importance of type of change was established. Thus, while some respondents have experienced more than one type of occupational change considered radical by HRC criteria, the instance of change studied was determined as the most the recent example of the most important type. Type 1 was considered the most radical type of change; Type 4 the least radical.

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[11] Retail Trade and Wholesale Trade were further compressed into one field, "Trade". Services, however, were broken out into 15 separate sub-groups.

[12] One further type of radical change was initially specified, but was dropped because of lack of support in data-set. This was movement to-or-from "homemaker" status. Despite instructions women respondents did not supply data in usable form. One reason such responses do not appear is that few women move directly from homemaker status to full-time movement.

B. Job and Employee Change

1. The Extent of Job and Employer Change. The extent of job and employer change was first established from the work histories of 1201 respondents. As explained earlier in this chapter only substantial job change was included in the analysis. After noting the relationship of job change to employer changer for the total population, we hypothesized that radical job changers would be more likely to make employer changes than the operationally defined non-radical careerist.

Table 5-A gives the number of job changes associated with an employer change and also job changes associated with no employer change by males and females in the study population. For example, in Table 5-A of the subjects reporting one substantial job change 30 (12.61%) did not change their employer, but 208 (87.39%) made an employer change. It may be noted in Table 5-A that the greatest frequency of job changes is associated with employer change through the category of "5" Employer Changes for the 2,347 job and employer changes reported. Although we have no known basis for comparison, we infer that population investigated is mobil relative to employer change.

Strikingly, one notes in looking at the data in Table 5-B and Table 5-C, that the relationship between job change and employer change for non-radical changers does not hold for either male or female respondents. This suggests that the relationship between job and employer change noted is Table 5-A for the total population is largely contributed by the radical change group. The data shown in Table 5-D and Table 5-E shows this to be true for both male and female radical changers. For both sexes job change is associated with employer change across the total array of data. The single exception is in the female data (Table 5-E) for two subjects who made five job changes; one of the two reported "only" four employer changes.

2. Internal Validity of Definition of Radical Change. This data in Tables 5-B through E, lends strong internal support to the validity of the operational definition of radical change described earlier in this Chapter. Table 5-F is a Summary of 2,347 Total Job Changes by Radical vs. Non-Radical Group, Sex and Employer Change by Sex. The Summary Table shows that we obtained 2,347 substantial changes. Among these 745 (31.74%) are radical and the remaining 1,602 (68.26%) non-radical. Related to the distinctions noted in comparing the data in Tables 5-B and C to Table 5-D and E, 697 (93.56%) of the 745 radical changes are associated with employer changers

Tracing the 697 employer changes in the radical group in Table 5-F, 523 (70.2%) are made by males and 222 (29.8%) by females, 212 (95.5%) are associated with employer change and 10 (4.5%) are not.

TABLE 5-A

THE RELATIONSHIP OF JOB CHANGE TO
EMPLOYER CHANGE FOR TOTAL POPULATION

NUMBER OF JOB CHANGES	NUMBER OF EMPLOYER CHANGE									N
	0	1	2	3	4	5	6	7	8	
1	30 12.61% 40.00%	208 87.39%								238
2	16 6.38%	43 17.13%	192 76.49%							502
3	10 5.41%	29 15.68%	34 18.37%	112 60.54%						555
4	10 8.06%	15 12.10%	14 11.29%	25 20.16%	60 48.39%					496
5	6 8.57%	3 4.29%	8 11.43%	11 15.71%	13 18.57%	29 41.43%				350
6	1 4.0%	6 24.0%	1 4.0%	4 16.0%	4 16.0%	4 16.0%	5 20.0%			150
7	2 25%	1 12.5%	0 0%	1 12.5%	1 12.5%	1 12.5%	2 25%	0 0%		56
									TOTAL JOB CHANGES AND EMPLOYER CHANGES	2,347
NUMBER OF JOB CHANGES:		1	2	3	4	5	6	7		
NUMBER OF RESPONDENTS:		238 10.14%	251 21.39%	185 23.65%	124 21.13%	70 14.91%	25 6.39%	8 2.39%		

TABLE 5-B

RELATIONSHIP OF NON-RADICAL JOB CHANGES TO EMPLOYER CHANGES FOR MALE RESPONDENTS

NUMBER OF JOB CHANGES	NUMBER OF EMPLOYER CHANGES									TOTAL
	0	1	2	3	4	5	6	7	8	
0	0									
1	195	3								198
2	137	9	1							294
3	101	4	2	0						321
4	43	1	0	0	0					176
5	21	2	0	0	0	0				115
6	8	1	0	0	0	0	0			54
7	2	0	0	0	0	0	0	0		14
8	0	0	0	0	0	0	0	0	0	0
TOTAL JOB AND EMPLOYER CHANGE										172

TABLE 5-C

RELATIONSHIP OF NON-RADICAL JOB CHANGES TO EMPLOYER CHANGES FOR FEMALE RESPONDENTS

NUMBER OF JOB CHANGES	NUMBER OF EMPLOYER CHANGES									TOTAL
	0	1	2	3	4	5	6	7	8	
0	0									
1	107	3								110
2	60	2	1							126
3	23	1	0	0						12
4	20	0	0	0	0					80
5	2	0	0	0	0	0				10
6	4	0	0	0	0	0	0			24
7	1	0	0	0	0	0	0	0		7
8	0	0	0	0	0	0	0	0	0	0
TOTAL JOB AND EMPLOYER CHANGE										429

TABLE 5-D

RELATIONSHIP OF RADICAL JOB CHANGES TO EMPLOYEE CHANGES FOR MALE RESPONDENTS

NUMBER OF JOB CHANGES	NUMBER OF EMPLOYER CHANGES									
	0	1	2	3	4	5	6	7	8	TOTAL
0	0									
1	14	178								192
2	3	3	82							186
3	0	2	1	27						90
4	0	1	0	0	9					40
5	0	0	0	1	0	2				15
6	0	0	0	0	0	0	0			0
7	0	0	0	0	0	0	0	0		0
8	0	0	0	0	0	0	0	0	0	0
TOTAL JOB AND EMPLOYER CHANGE										523

TABLE 5-E

RELATIONSHIP OF RADICAL JOB CHANGES TO EMPLOYEE CHANGES FOR FEMALE RESPONDENTS

NUMBER OF JOB CHANGES	NUMBER OF EMPLOYER CHANGES									
	0	1	2	3	4	5	6	7	8	TOTAL
0	0									
1	4	70								74
2	0	3	39							84
3	0	0	0	10						30
4	0	0	1	0	5					24
5	0	0	0	0	1	1				10
6	0	0	0	0	0	0	0			0
7	0	0	0	0	0	0	0	0		0
8	0	0	0	0	0	0	0	0	0	0
TOTAL JOB AND EMPLOYER CHANGE										222

TABLE 5- F

SUMMARY TABLE OF 2347 TOTAL JOB CHANGES BY RADICAL VS. NON-RADICAL GROUP, SEX AND EMPLOYER CHANGE BY SEX

NUMBER OF

RADICAL CHANGE GROUP N = 745 % = 31.74		NON-RADICAL CHANGE GROUP N = 1602 % = 68.26	
EMPLOYER CHANGE N = 697 % = 93.56	NO EMPLOYER CHANGE N = 48 % = 6.44	EMPLOYER CHANGE N = 1132 % = 70.66	NO EMPLOYER CHANGE N = 470 % = 29.34
MALE N = 523 % = 70.20	FEMALE N = 222 % = 29.80	MALE N = 1173 % = 73.22	FEMALE N = 429 % = 26.78

EMPLOYER CHANGE	NO EMPLOYER CHANGE	EMPLOYER CHANGE	NO EMPLOYER CHANGE	EMPLOYER CHANGE	NO EMPLOYER CHANGE	EMPLOYER CHANGE	NO EMPLOYER CHANGE
N = 485	N = 38	N = 212	N = 10	N = 781	N = 392	N = 351	N = 78
% = 92.73	% = 7.27	% = 95.50	% = 4.5	% = 66.58	% = 33.42	% = 81.82	% = 18.18

EMPLOYER CHANGE	NO EMPLOYER CHANGE
N = 1829	N = 518
% = 77.93	% = 22.07

3. The Extent of Radical Change. As mentioned in the section above, we identified 745 instances in the work histories of the 1201 respondents in the prime age group. These 745 changes were made by 328 males and 134 females, both males and females averaging 1.6 radical changes. These 462 respondents who were identified as radical changers constitute 38.5 percent of the prime age group.

The extent of radical occupational shifting identified by means of the operational definition utilized is high compared with other reports of occupational mobility of professionals/technicals and managerials.[13] Sommers and Eck (1977), for example, used census data tabulated by BLS to show that 30.2 percent of all those working in 1965 had transferred to a different occupation by 1970. For professionals/technicals and managerials the figure was 22.5 percent. Except for farmers and farm managers and private household workers, professionals are believed to be the least mobile of all occupational groups, a finding repeated in the January 1978 Current Population Survey reported upon by the Bureau of Labor Statistics (News, February 5, 1979).[14]

The larger amount of occupational mobility obtained in this investigation among its almost exclusively professional and managerial population may be partially attributed to by differences in time frame. The Sommers and Eck analysis is based on occupational change over a five-year period; the most recent 1978 survey reports on occupational changes experienced at any point in the careers of respondents 43 years of age and under. This alumni population was asked to discuss occupational changes occuring over their entire work history. Potential number of years spent in full-time employment may be over 20 years for some respondents and serve to explain the relatively high reportage of occupation change.

4. Patterns and Correlates of Radical Change. The University's graduates of 1964-65 who made radical occupational changes made them across most of the large occupational divisions. (See Tables 6 and 7 .) The clusters of shifts seem more related to the kinds of programs and degrees offered by the University than to other factors. There is the lack of significant differences in the relationship between the occupations left and occupations entered, as well as inability to substantiate several hypotheses concerning motivations for change.

The largest occupational clusters among the 262 shifters 43 years or younger are in architecture and engineering (30), in education (53) and in the administrative and managerial occupations (54). An additional number of shifters (less than 18) left top management positions with titles such as president and vice-president. Some of this group were also: 1) owners of businesses; 2) individuals who described themselves as consultants; and 3) subjects holding positions in firms the same as or similar to those in which they held professional or managerial positions. However, qualitative information suggests that some of these consultants are people who are using the term to dignify a radical shift which might better be described as "free-lancing" in grossly unrelated fields. Examples are the accountant who serves as consultant in graphic design; the former assistant professor of English who consults for those requiring the services of a photographer.

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[13] Note that the Census code reports mobility rates separately for professionals and managerials, while HRC, following the DOT code framework, reports the two together.

[14] In this 1978 survey in which supplemental questions were asked about occupational change since the same period in the previous year, i.e., from January 1977 to January 1978, professional, technical, and kindred workers were found to have an occupational mobility role of 8.4 percent for males and 8.5 percent for females. Again, only farmers and form managers had a lower rate (males - 3.0%; females - 7.5%).

TABLE 6

CLUSTERS OF OCCUPATIONS HELD BY RESPONDENTS
WITH CORRESPONDING DOT CODES PRIOR TO
AND FOLLOWING OCCUPATIONAL CHANGE

DOT Code	Occupational Cluster	Occupations Moved From N	Occupations Moved From %	Occupations Moved To N	Occupations Moved To %	Percent Change
001-019	Architecture/Engineering/ Surveying	30	11.4	17	6.5	-4.9
020-029	Mathematics/Physical Science	12	4.6	13	5.0	0.4
040-049	Life Sciences	9	3.4	6	2.3	-1.1
050-059	Social Sciences	4	1.5	5	1.9	.4
070-079	Medicine/Health (includes nursing)	14	5.3	13	5.0	- .3
090-099	Education	53	20.3	47	17.9	-2.4
100-109	Museum/Library/Archival	7	2.7	5	1.9	- .8
110-119	Law/Jurisprudence	17	6.5	19	7.3	.8
120-129	Religion/Theology	0	0	1	0.4	.4
130-139	Writing	3	1.1	10	3.8	2.7
140-149	Art	0	0	3	1.1	1.1
150-159	Entertainment/Recreation	1	0.4	1	0.4	0
160-161	Accountants/Auditors/Budget and Management Analysts	11	4.2	8	3.1	-1.1
162-188	Administrative Categories	54	20.7	52	19.7	-1.0
189	Top Management/Entrepreneurs/ Consultants/Self-employed	18	6.9	42	16.0	9.1
191-199	Misc. Prof'l Occupations	9	3.4	7	2.7	- .7
201-298	Clerical/Sales	15*	5.7	11**	4.2	-1.5
301-997	All Non-Prof'l/Non-Clerical/ Sales Occupations	5	1.9	2	0.8	-1.1
	TOTAL	262	100.0	262	100.0	

*Seven males in sales are actually professionals with title "salesman" or "sales representative" often in such areas as the computer industry or in engineering.

**The above note pertains to five males in this group. The situation of the female is unknown.

TABLE 7 . MATRIX OF OCCUPATIONAL SHIFTS OF RADICAL CHANGERS

OCCUPATION MOVED FROM	OCCUPATION MOVED TO: Arch./Engineering/ Surveying	Math./Physical Sciences	Life Sciences	Social Sciences	Medicine/Health	Education	Museum/Library Archival	Law/Jurisprudence	Religion and Theology	Writing	Art	Entertainment/ Recreation	Accts./Auditors/ Budget & Management Analysis	Administrative Categories	Top Management/ Entrep./Consultants	Misc. Professional Occupations	Clerical/Sales	All Non-Prof'l./Non-Clerical/Sales Occupations	
Arch./Engineering/ Surveying	5	2		1	1	8		1					1	7	4				30
Math./Physical Sciences	1	1		1		3							1	4	1				12
Life Sciences		1		1	1	4			1						1				9
Social Sciences						2							1	1					4
Medicine/Health			1		2	7				1				2				1	14
Education	5	4	3	1	4	1	4	2		4	1	1	1	10	7	3	2		53
Museum/Library Archival						2								3	1		1		7
Law/Jurisprudence						3		10						1	2		1		17
Religion																			0
Writing				1										1			1		3
Art																			0
Entertainment/ Recreation						1													1
Accts./Auditors/Budget & Management Analysis	1					3								7					11
Administrative Categories	3	3			2	3		4		3	1		3	8	22	1		1	54
Top Management/Entrep./ Consultants	1	1	2			4		1						5	1		3		18
Misc. Professional Occupations					1	4	1									1	2		9
Clerical/Sales	1	1			1	2		1		1	1		1	2	1	2	1		15
All Non-Prof'l./Non-Clerical/Sales Occup.					1					1				1	2				5
	17	13	6	5	13	47	5	19	1	10	3	1	8	52	42	7	11	2	262

Several smaller clusters of shifts were observed going out of medicine and health-related occupations (14); out of mathematics and the physical sciences (12); and out of accounting, auditing and budget analysis (11). Fifteen people left clerical occupations for mostly professional or managerial positions. Because of the less-than-professional status given salesmen by the DOT code a number of males in the sample population had to be so coded although they appear to be full-fledged professionals. Numerous instances of career sequences in the computer/data-processing industry or in finance show professionals moving into the job title, salesman, or sales representative, and then going on to a vice-presidency. However, except for a few specific job titles such as sales-engineer-mechanical equipment, most professionals and managerials holding positions in sales at some point in their career were coded as non-professionals. Thus, the shifts of persons in the sales category do not necessarily represent passage from non-professional to professional status. A clustering of moves by lawyers (17) may be noted. Ten of these represent changes in environment, i.e., shifts between private practice and public sector employment.

5. Movements in Education. The outstanding insight gained from the Matrix of Occupational Shifts (Table 7) is the extent of movement in and out of education. At least two-thirds of the 53 respondents who left education are academics who moved from the "halls of ivy" for the world of business, industry, and the services. Most of the changes of the college and university educators can be characterized as shifts between teaching and doing in their given field. Professors of chemistry became chemists; young architects left their practice for several years to become assistant professors in University's architectural program. Business school faculty have reported moves to a wide range of managerial positions a few becoming presidents of companies.

Equally notable are the 47 respondents, over two-thirds holding Ph.D.'s, who left the "real world" to become educators. They came from all the professional/technical/managerial categories except religion, writing and art. The largest clusters are from architecture and engineering (8) and from medicine, and other health-related fields including nursing (7). All of the forty-seven shifts into education represent full-time commitments. Teaching stints of lesser time commitment or performed parallel to practitioner jobs are not included in this analysis.

Although HRC had hypothesized that an exodus from academic into other fields was taking place because of the contraction of opportunities in both higher education and primary and secondary education, no such evidence was found. The first refutation of this hypothesis lies in the large number of persons leaving the doing occupations for teaching positions. While no tabulation was made of the total number of movements between teaching-and-doing, it is far higher than the 100 reported instances. Qualitative observation of career sequences revealed more than one shift between teaching-and-doing per work history in some cases. In certain other work histories in which such a shift existed, the radical change which was reported was of a different type.

A number of spectacular exits from academia are to be found among the University's Ph.D.'s. However, the number who became photographers

or scenic designers, or who entered the business world from non-business school areas of the University are minute. However colorful the experiences of these careers may be, they are unrepresentative of the trend. One possible explanation of such shifts from academia might be that some Ph.D.'s in the population may never have had any reportable work experience after obtaining their advanced degree. Therefore, provision was made for inclusion of part-time academic work experience of 48 months duration or more. This provided an opportunity to locate respondents who operated marginally in academia for a period of time after which, realizing they had never gained more than a toehold in the area of their training, moved into a completely unrelated field. Only one such instance was noted in the data analyzed, the case of a philosophy instructor who moved into the business field after several years of part-time academic employment.

6. Movements in Administration. The relationship of the University graduates to the world of management is also of sufficient size to provide insights. A large proportion of respondents hold undergraduate or graduate degrees from the University's business school or another business school.[15] Therefore, it was to be anticipated that a large number of respondents would report business job titles. In addition to this group many graduates of the engineering schools and others have risen to positions of authority which bear supervisory and managerial titles. Thus, the cluster of administrators-managers includes both professional managers and professionals without training for management. The vice-president for finance in an engineering firm is likely to have a background in finance, but the general manager and the president may be engineers who have risen from the ranks into management as part of normal career progression. Some of these professionals-who-become-managers are observed to go on and take positions of management in fields seemingly unrelated to their original field. A vice-president of a metal-fabricating plant, a metalurgist by training, may move to manage a dairy products producer. A third group of individuals who engage in management on various levels are self-employed persons,[16] entrepreneurs, owners, partners, and independent consultants. Many of these people are not trained for management, but function in this area.

Eighty of the 262 radical changers (30.6%) included in this survey have reported leaving some type of business-related occupation. They include eleven respondents who left accounting, auditing, and budget-management positions and eighteen who have positions in top management (presidents, vice-presidents) or who report self-employment, ownership status or partnerships.

Of the eleven accountants, auditors, and budget and management analysts who reported shifts, three went into education and seven into management positions. Of the 54 respondents in lower and middle level

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[15] There are 176 Wharton School MBA graduates and 68 with MBA's from other colleges and universities in the 1201 respondents studied.

[16] This is not meant to include persons in the traditional free-standing professions such as medicine and law.

management, 22 went on to top level management, ownership status, entrepreneurships, or other forms of self-employment. And, of the eighteen people who already possessed this status, four went to university positions and five into administrative-managerial positions on either a lesser level of management or in a very different environment. For example, a vice-president of a heating firm may have shifted to a position as manager of the safety division of a textile firm. This is considered a drastic shift as the industrial field (SIC family) is grossly unrelated. In some cases movement from higher level management titles to lower level titles may represent a shift from a higher position in a small firm to a lower level job title in a larger firm. In some other instances professionals who have served as managers appear to have returned to senior professional positions. One former manager reported the title "senior staff scientist," for example.

A view of the contribution of the professions to management staffing may be seen on Table 6. It suggests that business and industry have a continuing relationship through this interchange of personnel which should not only insure maintenance of technological progress but also communication of values, attitudes, and daily work moves (Bok and Dunlop, 1968).

The movements of over half of the 30 engineers and architects who reported occupational shifts were into education or administrative capacities. The same shift-paths emerged in the nature of occupational shifts into engineering and architecture. Of the 17 respondents entering the engineering-architecture cluster, 5 were from education and 5 from administrative positions. These patterns provide further evidence of the mutual exchange of professional expertise, attitudes, and values existent in the University in administrative hierarchies, and in professional practitioner levels in business and industry.

C. Patterns and Correlates of Occupational Change

1. Income and Salary as Factors in Occupational Change. The role of income in occupational choice and decision-making is controversial. Herzberg (1947) assigned salary to his list of "dissatisfiers," a group of factors labeled "hygienic factors," which he used to explain why workers were unhappy, unproductive, or prone to leave jobs and employers. Despite challenges as to the appropriateness of this disposition investigators continue to include income in the dissatisfier group (Wherry and South, 1977; Kahne and Kohen, 1975; Wernemont, 1966; Centers and Bugental, 1966).

To ascertain the importance of financial motivation in the career shifting of this group of college graduates the question of salary and income was raised in a series of contexts and numerous opportunities were provided in open-ended questions. In addition, HRC looked at family income in terms of spouses' income and joint family income to note any proclivity to change occupations as a function of the family's financial status.

The following reports the responses of this prime-age group of occupational changes.

When asked the extent to which better income was a factor in their various job changes, almost two-thirds (64.4%) of the men reported this to be an important factor while only one-third of the women (33.1%) considered better income to have been an important factor in job changes. No differences were noted between radical changers and non-changers (Table 8).

TABLE 8

BETTER INCOME AS A FACTOR IN JOB CHANGES

	Unimportant		Neutral		Important		Total	
	N	%	N	%	N	%	N	%
Males	53	16.4	62	19.2	208	64.4	323	100.0
Females	86	51.8	25	15.1	55	33.1	166	100.0
Total*	139	28.4	87	17.8	263	53.8	489	100.0

*This represents the portion of the pool of 1,201 cases which was coded.

Strong differences in the role of income in employment decisions were observed again in the differing responses of male and female alumni to the role of income in possible future occupational change (Table 9). When asked to consider how important an obstacle inadequate salary on current job is associated with making future occupation changes, only 17.5 percent of the women, while a third (33.0%) of the male alumni felt this to be a factor. This sex difference suggests that women in this data pool, having had tenuous labor force attachment and higher income husbands, do not regard their salaries as important contributions to family income. Therefore, their occupational decisions need not be made on the basis of monetary considerations as much as male cohorts.

TABLE 9

EXTENT OF IMPORTANCE OF PROBABLE LOW SALARY
IN MAKING A FUTURE OCCUPATIONAL CHANGE

	Unimportant		Neutral		Important		Total	
	N	%	N	%	N	%	N	%
Male Non-Changers	25	50.0	9	18.0	16	32.0	50	100.0
Male Radical Changers	27	42.2	15	23.4	22	34.4	64	100.0
Female Non-Changers	21	65.6	5	15.6	6	18.8	32	100.0
Female Radical Changers	25	80.6	1	3.2	5	16.1	31	100.0

N = 177 from data pool of 924 cases, equally divided between radical changers and non-changers.

About one-third of male changers and non-changers agreed that inadequate salary would be an important deterent to change (Table 9). This

contrasts sharply with the females, of whom 16.1 percent of the changers agreed this would pose an important obstacle. Equally of interest, half of the male non-changers who responded felt future income to be unimportant, while a lesser group (42.2%) of the male radical changers agreed. The difference in opinion between female changers and non-changers is more striking. About two-thirds (65.6%) of the non-changers said low salary would not be an obstacle while 8 out of 10 (80.1%) female changers held possible low salary to be unimportant. A further indication of the relative status of this matter as a factor in occupational change is the low level response elicited by the question altogether. A further indication of the relative status of this matter as a factor in occupational change is the low level of response elicited by the question altogether.[17]

A further instance suggesting the relative unimportance of the financial factor is shown by low level of mention when alumni who were identified as radical changers were asked to discuss facilitating and impeding factors involved in their occupational shifts. In discussing factors impeding their occupational change, only 5 alumni out of the pool of 262[18] radical changers mentioned financial factors directly and 10 perhaps indirectly (3.2% of responses mentioned family obligations). In discussing factors facilitating their change, only 29 alumni mentioned salary (6.1% of responses) (Tables 36 and 36C).

In discussing factors which made them perceive their occupational shift[19] as radical, only ten alumni, all males, mentioned salary, income, fringe benefits or associated items. Review of expectations the respondents associated with their occupational change, reveals concern with remuneration constituted only 10.5 percent of 503 responses of those who had positive expectations. However, of the half-dozen alumni who expressed their expectations negatively, 25 percent of the 24 responses involved salary considerations (Tables 38 and 39). This suggests that one reason for lack of mention of financial considerations in the general optimism of this group of changers. This speculation is supported by the findings comparing earning power in the new occupation to the old occupation. Over half (56.8%) reported earning considerably more than previously and 18.9 percent reported earning less (Table 43).

Further evidence of the non-critical motivational status of income is found in the responses concerning the important factors in the decision to make an occupational shift unrelated to the immediate job (a fixed alternative item). Forty-six percent of all respondents to the RCQ checked the item "more income needed," with no differences between males and females (Table 40). However, when asked to mention the primary motivating factor in charge of 207 responses from 145 respondents, salary was mentioned only 19 times (9.2%) (Table 41). Further, when asked to comment on changes accompanying or causing occupational change, only 6 of

[17]The low level of response is partially explained by its position near the end of a long survey instrument.

[18]Prime age group of radical changers who responded to the second survey instrument (Radical Changer Questionnaire).

[19]This refers to the designated occupational shift which the respondent was asked to discuss in the second survey instrument.

175 responses (4.8%) to this open-ended question pertained to money (Table 10).

Finally, when asked to summarize the benefits and costs of occupational change, despite the larger number reporting considerably increased earning power, only a small portion of the responses related to monetary factors. Only 14.2 percent of the male responses and 9 percent of the female responses to this open-ended question mentioned financial aspects of the change. Those with some negative evaluations of the change ("costs") devoted 18.8 percent of these responses to comments on financial aspects of the shift. This is consistent with the greater interest of those with negative expectations of the occupational move to financial aspects than those with positive expectations retrospectively reported.

2. The Role of Spousal and Total Family Income in Change. Important employment decisions are now seen as a family rather than individual decisions (Duncan and Newman, 1975; Mincer, 1976; DaVanzo, 1977). Thus the decision to make a radical occupational change (or to relocate) may very well be made on the basis of the effect of the change on the spouse's learning power. Likewise, the decision to make a radical occupational change may be motivated by considerations related to joint income. Therefore, analyses were made to determine the association between radical occupational change and both spousal and total family income.[20] The income data presented by this college-educated group indicates that radical changers come from families in which joint earning power is more modest than that of other families (Table 11). Radical changers have less income than non-radical changers. This appears true throughout the entire income range. The family income gap is especially notable at the top, the $50,000 and over category. Forty-five percent (45.3%) of all non-changers had family income of $50,000 or more, but only 36.1 percent of the radical changers (Table 11). This is also the case for radical changers among the males. Forty-six percent (46.4%) of the male non-changers report joint income of $50,000 or more, but only about a third (35%) of the male radical changers (Table 12). No statistically significant differences were found between total family income of female changers and non-changers. Further analyses are required to clarify the family income differential. It is very possible that families with one or both spouses in high paying occupations are less impelled to make radical changes than those with the prime earner in a low-paying occupation.

One approach to explanation of the labor force behavior of women is to examine incomes of spouse and total family income. This follows from explanations of married women's[21] decisions to work related to husband's income (Bowen and Finnegan, 1969; Cain, 1966). The higher the husband's income, the less likely the wife is to be employed. Employment decisions of wives (and husbands) are now seen as being based on decision-making based on earnings of both spouses. Studies have concluded that the higher the income of the husband, the less likely the wife is to be employed.

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[20] The assumption was made that combined income of husband and wife constitutes total family income.

[21] Of the women who reported income, 89.5 percent reported they were married.

TABLE 10

CHANGES ACCOMPANYING OR CAUSING OCCUPATIONAL CHANGE

Motivators*	N	%
Opportunity for professional growth	14	11.2
Gratification of the work itself	11	8.8
Responsibility	9	7.2
Recognition	6	4.8
Promotion, opportunity for	6	4.8
Hygienic Factors (including salary)**		
Working conditions/control of time/ lifestyle	16	12.8
Security, job/tenure	6	4.8
Supervision, quality or amount of	3	2.4
Interpersonal relationships on the job/ congeniality of staff	2	1.6
Salary	6	4.8
Tasks	11	8.8
Happiness	5	4.0
Other	30	24.0
TOTAL RESPONSES Number of Respondents = 78	125	100.0%

*36.8% of responses
**26.4% of responses

TABLE 11

TOTAL INCOME OF RESPONDENT AND SPOUSE

	NON-CHANGERS			RADICAL CHANGERS			TOTAL		
	N	%	Cum. %	N	%	Cum. %	N	%	Cum. %
Less than $5,000	-		-	-		-	-		-
5,000-7,499	0	0	0	2	0.6	0.6	2	0.2	0.2
7,500-9,999	1	0.2	0.2	1	0.3	0.9	2	0.2	0.4
10,000-14,999	5	1.0	1.2	0	0	0.9	5	0.6	1.0
15,000-19,999	7	1.4	2.6	11	3.3	4.2	18	2.9	3.9
20,000-24,999	30	6.1	8.7	23	6.9	11.1	53	6.4	10.3
25,000-29,999	35	7.2	15.9	34	10.1	21.2	69	8.4	18.7
30,000-34,999	61	12.5	28.4	43	12.8	34.0	104	12.6	31.3
35,000-39,999	52	10.6	39.0	32	9.6	43.6	84	10.2	41.5
40,000-49,999	77	15.7	54.7	68	20.3	63.9	145	16.8	58.3
50,000 or more	221	45.3	100.0	121	36.1	100.0	342	41.7	100.0
Subtotal	489			335			824		
Unknown							377		
Total							1201		

Chi-square = 18.36345 P = .0312

TABLE 12

FAMILY INCOME OF MALE RADICAL CHANGERS AND NON-CHANGERS

	MALE NON-CHANGERS			MALE CHANGERS			TOTAL		
	N	%	Cum. %	N	%	Cum. %	N	%	Cum. %
Less than $5,000	-		-	-		-			-
5,000-7,499	0	0	0	1	0.4	0.4	1	0.2	0.2
7,500-9,999	0	0	0	0	0	0.4	0	0	0.2
10,000-14,999	4	1.1	1.1	0	0	0.4	4	0.6	0.8
15,000-19,999	5	1.4	2.5	6	2.4	2.8	11	1.8	2.6
20,000-24,999	17	4.7	7.2	17	6.7	9.5	34	5.5	8.1
25,000-29,999	22	6.0	13.2	27	10.6	20.1	49	7.9	16.0
30,000-34,999	44	12.1	25.3	34	13.4	33.5	78	12.6	28.6
35,000-39,999	38	10.4	35.7	25	9.8	43.3	63	10.2	38.8
40,000-49,999	65	17.9	53.6	55	21.7	65.0	120	19.4	58.2
50,000 or more	169	46.4	100.0	89	35.0	100.0	258	41.8	100.0
Subtotal	364			254			618		
Unknown							197		
Total							815		

Chi-square = 16.13721 P = .0405

In this particular population of educated women spousal incomes tend to be high. Since income of spouse is critical to labor market participation decisions, the same relationship may exist in decisions to make occupational changers. However, this hypothesis must be rejected as no significant differences were observed in the total family income of women[22] who made radical changes and those who did not. Therefore, income of husband does not explain the decisions of this female population to engage in occupational change.

When total family income is analyzed by sex, the women appear to be better represented in the high family income group than the males. Almost 48 percent (47.9%) of the females as opposed to 38.5 percent of the males were in the $50,000 or more group (Table 13). This includes both radical changers and non-changers. This suggests that a very large proportion of the women in the sample have a great deal of freedom in making labor market decisions, including the decision to work at all and in what capacities. It also helps explain the large amount of part-time employments. Since almost half of all the women in the sample enjoyed at least $50,000 in family income, they had the opportunity of making largely non-economic work decisions. With 29.6 percent of all males in the prime-age group in the $50,000 or more income category, it is likely that the substantial family incomes are largely derived from these male earnings. A decision to make an occupational change by one of these women does not represent a serious threat to the family's economic well-being. Exceptions are the ten percent (10.1%) of the female population which was unmarried at the time of the survey[23] (Table 14). Many of the women with lesser earnings such as the one in five women (20.6%) who have spouses with income of less than $20,000, for example, may make occupational change decisions highly influenced by economic considerations.

The impression of affluence among this female population and especially the female radical changers is demonstrated by the data on differences in total family income of male and female radical changers (Table 15). A full 43.2 percent of the women enjoy family incomes of $50,000 or more, but only about one-third of the men (33.0%). The hypothesis that a large proportion of the women radical changers are free to make non-economically based employment decisions, including those decisions involving occupational shift, is reenforced by this data.

In summary, the role of salary and income in the career decision-making of occupational shifters is in concordance with Herzberg's (1959) positioning of it among his hygienic factors. Financial considerations are very much in the picture in career shift decisions, but are not perceived as a critically decisive factor. This conclusion is drawn from responses to both fixed alternative and open-ended questions in the two survey instruments and analysis of family income of the radical changers who were studied.

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[22]Of the women who reported income, 89.5 percent reported they were married.

[23]Of course some may be divorced of widowed and derive income from these prior sources.

TABLE 13

TOTAL INCOME OF RESPONDENT AND SPOUSE BY SEX

	MALES			FEMALES			TOTAL		
	N	%	Cum. %	N	%	Cum. %	N	%	Cum. %
Less than $5,000	2	0.3	0.3	2	0.5	0.5	4	0.3	0.3
5,000-7,499	2	0.3	0.6	2	0.5	1.0	4	0.3	0.6
7,500-9,999	3	0.4	1.0	2	0.5	1.5	5	0.4	1.0
10,000-14,999	14	1.8	2.8	12	3.2	4.7	26	2.2	3.2
15,000-19,999	24	3.0	5.8	24	6.4	11.1	48	4.1	7.3
20,000-24,999	59	7.4	13.2	42	11.2	22.3	101	8.6	15.9
25,000-29,999	73	9.2	22.4	27	7.2	29.5	100	8.6	24.5
30,000-34,999	99	12.5	34.9	29	7.8	37.3	128	11.0	35.5
35,000-39,999	76	9.6	44.5	25	6.6	43.9	101	8.6	44.1
40,000-49,999	135	17.0	61.5	31	8.2	52.1	166	14.2	58.3
50,000 or more	305	38.5	100.0	180	47.9	100.0	485	41.7	100.0
Subtotal	792			376			1168		
Unknown	23			10			33		
Total	815			386			1201		

Chi-square = 42.8943 P > .0000

TABLE 14

INCOME OF SPOUSE

	MALES			FEMALES			TOTAL		
	N	%	Cum. %	N	%	Cum. %	N	%	Cum. %
Less than $5,000	164	23.8	23.8	8	2.5	2.5	172	17.1	17.1
5,000-7,499	34	4.9	28.7	7	2.2	4.7	41	4.0	21.1
7,500-9,999	30	4.3	33.0	4	1.3	6.0	34	3.4	24.5
10,000-14,999	55	8.0	41.0	19	6.0	12.0	74	7.4	31.9
15,000-19,999	44	6.4	47.4	27	8.6	20.6	71	7.1	39.0
20,000-24,999	20	2.9	50.3	44	14.0	34.6	64	6.4	45.4
25,000-29,999	11	1.6	51.9	33	10.5	45.1	44	4.4	49.8
30,000-39,999	10	1.4	53.3	33	10.5	55.6	43	4.3	54.1
40,000-49,999	3	0.4	53.7	25	7.9	63.5	28	2.8	56.9
50,000 or more	8	1.2	54.9	72	22.8	86.3	80	8.0	64.9
Not Married	65	9.4	64.3	33	10.5	96.8	98	9.8	74.7
None	246	35.7	100.0	10	3.2	100.0	256	25.3	100.0
Subtotal	690			315			1005		
Unknown, by sex	124			45			169		
Unknown, sex not known							27		
Total	814			360			1201		

Chi-square = 152.68 P > .0001

TABLE 15

TOTAL INCOME OF RESPONDENT AND SPOUSE

	MALE RADICAL CHANGERS			FEMALE RADICAL CHANGERS			TOTAL		
	N	%	Cum. %	N	%	Cum. %	N	%	Cum. %
Less than $5,000	1	0.3	0.3	0	0	0	1	0.2	0.2
5,000-7,499	1	0.3	0.6	1	0.8	0.8	2	0.4	0.6
7,500-9,999	2	0.6	1.2	1	0.8	1.6	3	0.7	1.3
10,000-14,999	6	1.9	3.1	5	3.8	5.4	11	2.4	3.7
15,000-19,999	11	3.4	6.5	13	9.8	15.2	24	5.3	9.0
20,000-24,999	28	8.8	15.3	14	10.6	25.8	42	9.3	18.3
25,000-29,999	34	10.7	26.0	9	6.8	32.6	43	9.5	27.8
30,000-34,999	43	13.5	39.5	9	6.8	39.4	52	11.5	29.3
35,000-39,999	29	9.1	48.6	9	6.8	46.2	38	8.4	37.7
40,000-49,000	59	18.4	67.0	14	10.6	56.8	73	16.2	53.9
50,000 or more	105	33.0	100.0	57	43.2	100.0	162	36.1	100.0
Subtotal	319			132			451		
Unknown	9			2			11		
Total	328			134			462		

Chi-square = 21.631 P > .018

Money and associated matters were often checked or mentioned by respondents to the two questionnaires. However, frequency of mention provides a poor measure of the relative importance of the item. Items concerning income sometimes drew a comparatively high-level of response because it is a factor which impinges on everyone's lives to some extent. Other factors seldom have this degree of commonality. A more accurate view of the importance of money emerged from responses to open-ended questions.[24] While money is often mentioned in both types of questions, responses to the open-ended questions reveal that it is seldom mentioned first or second.

Radical changers tend to belong to family units enjoying less joint income than non-changers. Male changers tend to possess less family income than male radical changers. This suggests an economic motivation for males to make an occupational change. The family income data does not support hypotheses related to demonstrating economic motivations for women to make radical occupational changes.

3. External Labor Market As A Factor. One explanation of the willingness of professionals and managerials to leave occupations in which they have "sunk costs" - financially, emotionally, and time-wise - is contraction of demand for a given occupation or field. The effect of contraction may be reflected in perceptions of limited possibilities for promotion and, at worst, unemployment. Since many professionals relate to a regional or even national labor market in job search, loss of employment may well be associated with relocation, a factor some may wish to avoid (see discussion of relocation). However, demonstration of a linkage between contraction of demand and occupational shift is difficult to demonstrate in our data. The proportion of unemployed professionals in any given occupation or field at the point in time covered by any given Current Population Survey of 56,000 households is so small as to be statistically unreliable.[25] Looking at employment levels by detailed industry in Standard Metropolitan Areas (SMSAs) of the worker's employer is also not productive. Because of the great increase in population and expansion of the economy in the current century, only the exceptional industry shows a decline in absolute numbers employed. Therefore, it is not possible to associate accurately an occupational shift with labor market conditions at any given time.[26]

The respondents to HRC's two surveys, given repeated opportunities to express themselves concerning labor market conditions, failed to indicate such interest. For example, when asked to list impediments to occupational change, external labor market conditions were mentioned in only 4.5 percent of the responses and no mention at all was made in recollections of facilitating factors (Tables 28 and 30). Again,

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[24]This conclusion runs counter to the viewpoints of Schuman and Presser (1979) on the relative efficacy of the closed vs. the open-ended question. For HRC's data and instruments relevant to income, the open-ended material appears to provide better insights.

[25]Conversation with personnel at the Bureau of Labor Statistics.

[26]Students of labor mobility related to geographic relocation have commented on difficulties in associating relocation of professionals with external labor market pressures for the same reasons (Da Vanzo, 1977).

when asked to note changes accompanying or causing occupational shift, only six respondents (4.8%) gave any response which could be construed as relating to demand factors, i.e., six comments dealt with job security (Table 10). Further, when asked to indicate motivations for change not immediately related to the job occupied at time of shift, only 27 alumni (10.3%) mentioned poor labor market conditions (Table 40). Of these few, more males than females (11.7% to 6.1%) in the prime-age radical change group indicated their concern with this issue.

Evidence that labor market considerations in occupational change are not perceived as such by participants in this study comes from the low level of response to an item in the first survey instrument (JCQ). Respondents were asked to indicate the labor market conditions for <u>each</u> job which they quit. Altogether 2,347 job quits were reported. Respondents supplied information on labor market conditions for only 1247 or 53.1 percent of the job changes. This is interpreted as indicating a low level of interest in the subject and, of the 1247 responses, 283 (22.7%) were to the effect that labor market conditions either had not been known or could not be recalled (Table 16). However, despite these two indications that labor market conditions were not motivators of occupational change, another bit of evidence suggests that the influence is there, but is either not recognized or articulated as such by most respondents. This follows from the differences in perception of labor market conditions of respondents who made one or more radical job change and those who did not. Respondents indicated that labor market conditions had been unfavorable in about 24.9 percent of the cases in which a radical change was involved (using HRC criteria) and about 22.3 percent of the changes not involving occupational shift. Moreover, the reporters of job changes involving occupational shift recalled labor market conditions as being favorable (48.8%) less often than reporters of job shifts not involving occupational change (56.5%).

If prospects for promotion are thought of as being influenced by external labor market conditions, then the extent of emphasis on promotions by radical changers may be taken as a surrogate for concern about labor market conditions. A relatively high level of response was elicited around the promotion issue when alumni who had made radical changes were asked about important factors in the career shift unrelated to the immediate job (Table 16). Almost three out of every ten (29.1%) male radical changers indicated that they had been concerned about poor prospects for promotion in the occupation they had left. This concern was shared by about a fifth (18.9%) of the women who had made radical shifts. While the concern about promotions in the old field provided "push" for a large minority, the hope for more opportunity in the new occupation offered "pull." About a quarter (23.4%) of the males, but only a tenth (9.1%) of the women, reported that better prospects and outlook in the new occupation were important factors in their career shift unrelated to the immediate job.

The lesser attention of the women to the promotion issue is most likely attributable to the perception that women are seldom promoted. The women's professions offer few such possibilities while the business world, until very recently, has assumed that women will remain in certain job titles and at the bottom levels of the establishment hierarchy. One

TABLE 16

LABOR MARKET CONDITIONS AT TIME OF JOB CHANGE

RADICAL CHANGERS	FAVORABLE	UNFAVORABLE	DIDN'T KNOW	DON'T RECALL	
Male	116 48.95%	57 24.05%	53 22.36%	11 4.64%	237
Female	53 48.62%	29 26.61%	23 21.10%	4 3.67%	109
Sub-Total	169 48.8%	86 24.9%	76 22.3%	15 4.3%	346* 100.0%
NON-RADICAL CHANGERS					
Male	342 54.90%	139 22.31%	114 18.30%	28 4.49%	623
Female	167 60.07%	62 22.30%	39 14.03%	10 3.6%	278
Sub-Total	509 56.5%	201 22.3%	153 17.0%	38 4.2%	901 100.0%
TOTAL	678 54.3%	287 23.0%	229 18.4%	53 4.3%	1,247* 100.0%

*This refers to all job changes reported in this study for which information on labor market conditions was supplied. No labor market information was given for an additional 1,100 job changes. The total number of job changes reported in this study is 2,347 for 1,201 respondents.

woman alumna illustrated this perception by commentary that she had left a sales position for a job in one of the semi-professions because "women are seldom promoted in the retail trade." Other women touched on this issue obliquely in discussing job discrimination. While the women graduates of the Classes of 1964-5 have not been career-oriented as a group, their consciousnesses have been raised by the Women's Movement of the 1960's. Seventy-two (18.7%) prime-age women of the respondents to the initial questionnaire stated that they had been discriminated against, most specifying that the discrimination was not personal, but related to their status as women. Numerous comments related to lack of promotion possibilities as a normal work expectation. Since the perceived alternatives, i.e., women's occupations such as nursing, teaching, social work, or library work are structured so as not to include many opportunities for upward mobility, promotion prospects are not likely to be a major consideration in occupational shift of women.

The relative importance of labor market conditions in motivating occupational change is suggested by the response to an open-ended question asking for the primary motivating factor unrelated to the immediate job which lead to occupational change.[27] Only 9 of 145 respondents (4.3%) related to prospects for promotion.

In summary, this college-educated group does not view labor market demand factors as having had much influence on their decisions to make occupational shifts. However, promotion, an internal organizational personnel policy, viewed as related to external conditions, aroused considerable interest. Despite a healthy level of interest, however, only a miniscule number of respondents saw any aspect of demand factors as being the primary factor in occupational change. It is possible that the effect of demand factors on occupational behavior are minimized in the respondent's consciousness because of needs related to achievement and self-esteem. College-educated workers are socialized to think in terms of self-fulfillment, achievement, competitiveness, and usefulness, all values in dissonance with the concept of accepting response to extraneous factors such as demand. When expressed in terms of impediments to personal fulfillment or competitiveness (i.e., the promotion issue) serious interest is shown in this subject.

4. Investigation of New Occupations. Discussion of motivations for occupational change is enhanced by material on how the decisions to make the particular change under study come about and how the change was implemented. One aspect of planning involves information concerning the contemplated occupation. The degree of investigation undertaken should offer some clues as to the planfulness of the move, the degree of investment in it, and the knowledge of risks undertaken. HRC, therefore, asked its radical changer population to estimate retrospectively the degree to which they had made an effort to investigate the potential of the new occupation along a number of dimensions (Table 17).

It was found that almost half of the respondents tended to make modest

[27] This followed the fixed-alternatives question concerning factors in career shift unrelated to the immediate job mentioned above.

TABLE 17

EXTENT OF EFFORT IN INVESTIGATION OF
NEW OCCUPATIONS PRIOR TO CHANGE

	NONE		SOME		GREAT EFFORT		N/A		ROW TOTAL	
	N	%	N	%	N	%	N	%	N	%
Job Prospects	63	26.3	100	41.9	50	25.1	16	6.7	239	100.0
Skills and abilities required	70	29.0	107	44.4	52	21.6	12	5.0	241	100.0
Aptitudes	71	29.3	93	38.5	62	25.6	16	6.6	242	100.0
Satisfaction/enjoyment of the work	48	19.8	107	42.4	72	29.8	15	6.2	242	100.0
Earnings potential	68	28.1	128	52.9	37	15.3	9	3.7	242	100.0
Promotion prospects*	101	41.7	80	33.1	29	12.0	32	13.2	242	100.0
Fellow workers, characteristics of	71	98.6	0	0	0	0	1	1.4	72	100.0

*On this item significant differences were observed between reports of males and females:

	NONE		SOME		GREAT EFFORT		N/A		ROW TOTAL	
	N	%	N	%	N	%	N	%	N	%
Males	72	39.8	67	37.0	24	13.3	18	9.9	181	100.0
Females	29	47.5	13	21.3	5	8.2	14	23.0	61	100.0

investments in investigating most of the aspects of an occupation about which they were queried. No one admitted to having investigated the characteristics of their fellow workers in their new occupations, though this is thought to be a major "pull" factor in occupational choice (Holland, 1973). Only about a fifth to a quarter of the respondents responded to investing considerable energy in looking at such aspects of change as job prospects, necessary skills and abilities, or aptitudes. Still fewer reported intensive effort in investigating prospects for promotion (12.0%) or earnings potencial (15.3%). A good sized minority of respondents admitted to having made no prior investigation at all of prospects in their new occupation. For example, 29 percent of the respondents reported having made no prior inquiries into skill requirements or aptitudes needed. Over one quarter (26.3%) had not looked into job prospects. Most interesting, in terms of motivation for change, more than 4 in 10 (41.7%) said they had not looked into promotion prospects. This was much more true for women than men (47.5%: 39.8%). This difference may well be based on the lesser expectations of women, learned from earlier experiences in female-type employment.

Closely related to the question of promotion prospects is the issue of earnings potential. These two items evoked the fewest respondents who reported investing much energy. The issue which evoked the most investigating activity was the potential for having satisfying experiences on the job. More respondents (72%) reported some degree of effort in investigating this issue than any other raised.

These findings suggest that this group of occupational changers did investigate to a considerable degree the dimension of most interest, i.e., job satisfaction. The findings seem more optimistic concerning an informed rationale for occupational change than Londoner's (1970) findings, i.e., that persons preparing to enter the teaching profession had done little reality testing prior to investing in preparatory education.

An explanation for why many changers in the population studied did not research their new occupations may be that many did not conceive of themselves as changing occupations. As is evident from the data on occupational movements (Table 7) a large number of the changes could be characterized as moving between doing-and-teaching or as moving between professional and administrative positions. Although the definition of radical change did not include moves from professional positions to administrative ones in the same family of industries, some moves of professionals to administrative positions in very different industrial settings may not have been perceived as radical change by the actors. That very many did not agree with HRC's designation of radical change is clear from Table 37. If this is so, the data on levels of effort in investigation of dimensions of the new occupation is not meaningful unless we know more about the extent to which the job change was perceived as a new or different experience by each actor. If the actor sees himself making moves consistent with a self-concept (a career anchor, for example, as elaborated by Schein (1978), or as having a "common thread" (Table 36), then he/she does not define the job shift as a radical one though it meets HRC's objective radical change criteria.

5. Relocation as a Factor in Occupational Change. Migration studies tend to conclude that geographic movements are economically motivated (Saben, 1964· DaVanzo, 1977), with movement in the direction of higher wages (DaVanzo, 1972). However, considerable flow occurs in the opposite direction (Sjaasted, 1962· Morrison, 1976)· namely, toward lower wages. While efforts to explain migration on the basis of motivation of economic considerations have mixed success, migration specialists agree that college-educated workers are more geographically mobile then any other occupational group (Ladinsky, 1967· Schwartz, 1967, Folger and Nam, 1967; Greenwood, 1967). This is explained by the larger labor market open to professionals and their greater resources in terms of financial assets and sources of job information (Schwartz, 1976; Landinsky, 1967).

Most professionals and the technically skilled are reported to have jobs prior to relocation. This is also true for about one-half of managers and officials (Saben, 1964). Landinsky, using 1960 Census data, found migration linked primarily to occupational career mobility and family life cycle. Seventy-four percent of the professionals and technicals in the 1960 Census had moved from place of birth as opposed to 64 percent of other workers. Furthermore, over a five year period the professionals and technicals were almost twice as likely to have migrated as opposed to other workers (33% to 16%). Variables most closely associated with migration were found to be: (1) family life cycle, (2) type of industry, (3) professional status, (4) career stage, (5) urbanism, and (6) regionalism. To summarize, migrants were characterized as young single females or married males with small families with low income in the extractive, manufacturing, and transportation industries or trade, highly educated, more often in the "old" or "new" professions[28] in large urban areas whose move is to the South and West.

Using the same census data Landinsky identified the types of professionals more and less likely to make geographic moves. Less likely to migrate were professionals with heavy investments and dependency upon clientele. More likely are salaried professionals in geographically scattered organizations with "flat" hierarchies· salaried professionals with non-uniform working conditions and earnings· salaried personnel with well-developed formal occupational media and intense informal collegial contacts· and salaried professionals in highly established "old" and "new" professions. These last three groups are more likely to move greater distances than other professionals and technicals. Employees who are salaried and marginal professions tend to limit their moves to local labor markets. Landinsky explains the differences on the basis of degree of specialization. The more skilled can move in larger labor markets.

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[28] Reiss (1955) classified the professional end of the continuum of occupations into five categories. The "old" professions are those long established as professions, i.e., law, medicine, philosophy. The "new" professions include the highly technical occupations, including natural and social scientists and engineers.

A large proportion of professionals and technicals (42%) who moved had jobs prior to the time of move (Landinsky, Saben, 1963). Nineteen percent, according to a 1962-63 Current Population Survey, involved job transfers. Professionals (along with sales workers) were found most likely to move for work-related reasons. And, once settled, most professional and technical workers were found to be in the same broad category of employment as previously (81 3/10% of the professionals and technicals; 68.6% of the managers and officials).

One aspect of migration of considerable current interest is the relationship between the employment of wives and likelihood of migration and the affect of migration on wives' careers. It is often hypothesized that job transfers and employer changes of the future will be fewer as men will refrain from making geographic moves which disturb the wife's employment. In this view, one of the 500 top firms recently advertized in The Philadelphia Inquirer in large type "RELOCATE YOUR CAREER, NOT YOUR FAMILY." According to Long (1974), families in which wives work are more likely to move short distances and are slightly less likely to undertake long distance migration than when the wife is not employed outside the home. Long concluded the migration of husbands interferes substantially with wives' careers and helps explain women's inferior earnings. He also speculated that anticipation of moves of husbands may influence women to confine themselves to traditional female occupations. However, DaVanzo (1977), using longitudinal data from University of Michigan's Panel Study of Income Dynamics, reports that wives are not passive, secondary migrants, but appear to have a significant influence on families' decisions to move. He reports families with working wives are not less likely to move than others. Also, families that move tend to select destinations where both husbands' and wives' earnings are highest and where the wives' total gain in contribution to family earnings is highest.

Despite the impressions created by material concerning the topic of relocation in the popular press and in the attention paid by social scientists to relocation questions, the issue does not appear to be a major one for HRC's college graduates. Neither does the data show any strong, positive link between the relocation and occupational change. Moreover, the incidence of relocation for radical changers and non-changers is the same. Eleven percent of the total reported job changes of both radical changers and non-changers involved some relocation.[29] This difference obtains despite significantly greater employer changes by the radical group. This suggests that many of these employer changes are within the same geographical area.

The graduates surveyed in this study tend to confirm the thesis that migration is largely job related (Schwartz, 1976; Gallaway, 1969a). Only eight and one-half percent of the males surveyed reported a geographic move unrelated to a job change. However, many more women reported such a move (38.5%). This may be explained by the low level of long-term, full-time labor force attachment on the part of the women in the data-set

[29] All job changes, including all considered radical in nature, were included.

and their primary identification as wives and mothers. When asked how important 'desired geographical location' has been in making job changes, over half of all respondents (52.2%) felt it was an important factor. This was especially true for female non-radical changers (Table 17). This may be related to the relative importance of non-work specific issues to women who follow conventional career paths. Non-radical changers of both sexes tended to feel that desired location was important in job change to a greater extent than radical changers, 57.6 percent to 46.2 percent. More radical changers than non-changers thought the topic of relocation unimportant as a motivator in job change.

In hypothesizing about the role of relocation as a motivator of occupational shift, HRC investigators were faced with two contradictory possibilities: (1) occupational shifts are made to avoid the need for relocation due to conditions of the local labor market or other failures in relocation to provide opportunities in an occupation currently held, or (2) relocation often accompanies occupational shift. The former suggests that radical changers are less flexible, more passive types while the second sees the radical changer as having the daring-do to change both locale and type of work.

Some modest support for the first hypothesis is found in that about 15 percent (14.8%) of the male radical changers in the population mentioned avoidance of relocation as an important factor in their career shift. This was also true of three percent of the females (Table 40). However, when asked to state the primary motivating factor unrelated to the immediate job which accounted for their change, only 1.4 percent of the responses related to avoidance of relocation. Further, when asked to mention changes accompanying or causing their occupational change, the subject of relocation was insufficiently mentioned for reportage. Further, of one hundred seventy-five respondents discussing factors impeding their occupational change, only nine mentioned relocation as an impeding factor. The observation that more radical changers than non-changers see a desired geographic location as an unimportant factor in job changes suggests that radical changers are individuals who prefer not to relocate if possible. Without regression analysis it can only be stated that issues involving relocation are important for some individuals, but do not appear to be a major issue in the career decisions and occupational shifts of this college educated group.

6. Higher Education and Radical Change. A major objective of the study is to further our understanding of the relationship between higher education and radical change. Early discussion of the appropriate construction of a definition of radical change included the possibility of using an individual's pursuit of additional education (after working for at least one year) as one of the components of radical change. Eventually this notion was discarded because no substantial evidence was found in the literature to support the notion that additional education accompanies radical change. Thus, instead of including education as a part of radical change, the hypothesis that additional education does indeed precede or accompany radical change was tested. To meet this objective a number of items in both questionnaires provide information about the educational experiences of respondents in making job changes, particularly radical changes.

TABLE 18a

DESIRED GEOGRAPHIC LOCATION AS A "PULL"
FACTOR IN JOB CHANGES

Radical Changers	Unimportant N	Unimportant %	Neutral N	Neutral %	Important N	Important %	Total N	Total %
Male	44	29.1	38	25.2	68	45.7	150	100.0
Female	26	34.7	13	17.3	36	48.0	75	100.0
Non-Radical Changers								
Male	44	26.5	42	25.3	80	48.2	166	100.0
Female	16	17.6	7	7.7	68	74.7	91	100.0
Total	130	26.9	100	20.7	252	52.2	482	100.0

No significant differences were observed between radical and non-radical changers.

TABLE 18b

DESIRED GEOGRAPHIC LOCATION AS A "PULL"
FACTOR IN JOB CHANGES

	Unimportant N	Unimportant %	Neutral N	Neutral %	Important N	Important %	Total N	Total %
Radical Changers	70	31.1	51	22.7	104	46.2	225	100.0
Non-Radical Changers	60	23.3	49	19.1	148	57.6	257	100.0
Total N = 482								

No significant differences were observed between radical and non-radical changers.

TABLE 19

GEOGRAPHIC MOVES OF RESPONDENTS
UNRELATED TO JOB CHANGE

	Males		Females		Total	
	N	%	N	%	N	%
Related		8.5		38.5		18.7
Unrelated		90.5		60.5		80.1
Not Sure		1.3		1.0		1.2
Total		100.0		100.0	573	100.0

TABLE 20

JOB CHANGES INVOLVING RELOCATION*

	Job Changes	Total Number Job Changes	%
Radical Changes	82	745	11.0
Non-Radical Changes	174	1,602	10.9

*Relocation occurred within 6 months following commencement of new job.

Of particular interest is any higher education undertaken after the individual has worked in a full-time capacity for at least one year. Education obtained immediately prior to a job change or radical change can be considered to have occurred "in conjunction with" that change. Radical changers were asked a number of times in the RCQ about such educational undertakings, and their perceptions of the programs' value and appropriateness.

The educational findings reported in the following sections are based on the detailed educational history elicited in the JCQ.

Highest Degree Obtained.

The first question addressed in the findings is whether non-changers on the whole tend to hold higher degrees than do radical changers. A number of studies (see, for example, Sommers and Eck, 1977; Byrne, 1975) on the effects of "investment" in education led to the hypothesis that the more graduate study a respondent has completed, the less likely he or she is to have made a radical change. Table 21 indicates that the percentage of changers and non-changers who have obtained as their highest degree a bachelor, master, doctorate or professional degree is similar, with non-changers more likely to hold a doctorate and changers to have obtained a professional degree ($x^2 = 6.97$; $p = .07$). In fact, among the female respondents, the percentages are nearly identical ($x^2 = 1.13$; $p = 7.70$).

TABLE 21

HIGHEST DEGREE OBTAINED

	MALE				FEMALE				TOTAL	
	NRC		RC		NRC		RC			
DEGREE	N	%	N	%	N	%	N	%	N	%
B.A.	82	16.7	43	13.1	78	30.9	40	29.9	243	20.3
M.A.	198	40.5	125	38.1	96	38.1	55	41.1	474	39.4
Ph.D.	98	20.0	52	15.9	20	7.9	14	10.4	184	15.3
Professional Degree	66	13.4	65	19.8	13	5.1	5	3.7	149	12.4
Other*	43	9.4	43	13.1	45	18.0	20	14.9	151	12.6
TOTAL	487	100.0	328	100.0	252	100.0	134	100.0	1201	100.0

*Other includes those respondents holding an Associates Degree and those for whom it cannot be determined which degree is the highest (e.g., the holder of both a Ph.D. and a professional degree).

Among males, differences occur at the Ph.D. and professional degree levels with a slightly larger percentage of non-changers receiving the Ph.D., and a larger percentage of changers holding a professional degree.[30]

[30] ($x^2 = 8.51$; $p = .04$). Professional degrees include degrees in divinity, dentistry, medicine, law, veterinary medicine, and doctoral level degrees in education and social work.

Most of those holding the Ph.D. degree received that degree at some point in the 1960's; therefore, if respondents entered college teaching as a profession at that time, they are likely to have attained tenure or be very close to its attainment. Certainly there has been a great deal of recent movement out of academic teaching, but most of that movement has been among more recent recipients of the Ph.D. degree, who often experience extremely limited access to tenure. Theories about investment in education would certainly argue that there should be very little radical change among both Ph.D. and professional degree holders. Table 21 demonstrates that the number of male changers and non-changers holding professional degrees are nearly identical, while more non-changers have Ph.D.'s than do changers.

Table 21 also shows that overall, male respondents tend to hold higher degrees than do females ($x^2 = 74.09$; $p = .001$).

Number of Degrees Held

A second indicator of education obtained is the number of degrees held. Again, it was originally hypothesized that non-changers would hold more degrees than would radical changers. Results suggest a slight trend in the opposite direction, that radical changers hold more degrees than do non-changers, but the differences between the two groups are not significant ($x^2 = 7.96$; $p > .10$). Note, however, that among the males 30 percent of the changers held three or more degrees, compared to 22 percent of the non-changers. Similarly, among the females 57 percent of the changers hold two or more degrees, compared to 47 percent of the non-changers. This trend is believed to relate to the obtaining of an additional formal degree as part of making a radical change. Again, males report a significantly greater number of degrees than do female respondents ($x^2 = 60.38$; $p = .001$).

TABLE 22

NUMBER OF FULL TIME DEGREES HELD

Number of Degrees	MALE				FEMALE				TOTAL	
	NRC		RC		NRC		RC			
	N	%	N	%	N	%	N	%	N	%
0	34	8	23	7	26	10	15	11	98	8
1	113	23	60	18	109	43	43	32	325	27
2	230	47	146	45	84	33	53	40	513	43
3	90	18	76	23	27	11	16	12	209	17
4	15	3	16	5	2	1	4	3	37	3
5+	5	1	7	2	4	2	3	2	19	2
TOTAL	487	100	328	100	252	100	134	100	1201	100

Timing of Education

One indicator of the critical variable of timing of education is the number of years between the first two degrees, and the number of years between the last two degrees of those respondents who hold two or more

degrees. It is hypothesized that the number of years between degrees should be greater for the radical changers than for the non-changers. This hypothesis reflects the critical experimental question raised originally in the study about the nature of the relationship between returning to formal education programs and the incidence of changing occupations.

TABLE 23

NUMBER OF YEARS BETWEEN FIRST TWO DEGREES

Number of Years	MALE				FEMALE				TOTAL	
	NRC		RC		NRC		RC			
	N	%	N	%	N	%	N	%	N	%
0	271	80	168	69	81	69	27	36	547	70
1	12	4	16	7	16	14	9	12	53	7
2	17	5	10	4	6	5	10	13	43	6
3	8	2	7	3	5	4	8	11	28	4
4	7	2	9	4	3	3	11	14	30	4
5	5	1	8	3	2	2	3	4	18	2
6	3	1	8	3	1	0.75	3	4	15	2
7	6	2	2	0.5	1	0.75	1	1	10	1
8	2	0.5	2	0.5	1	0.75	1	1	6	0.5
9	2	0.5	3	1	0	0	0	0	5	0.5
10+	7	2	12	5	1	.075	3	4	23	3
TOTAL	340	100	245	100	117	100	76	100	778	100

TABLE 24

NUMBER OF YEARS BETWEEN LAST TWO DEGREES

Number of Years	MALE				FEMALE				TOTAL	
	NRC		RC		NRC		RC			
	N	%	N	%	N	%	N	%	N	%
0	227	58.2	132	49.8	64	43.8	27	29.0	450	50.3
1	51	13.1	41	15.5	27	18.5	9	9.7	128	14.3
2	27	6.9	26	9.8	12	8.2	12	12.9	77	8.6
3	25	6.4	18	6.8	4	2.7	8	8.6	55	6.1
4	20	5.1	16	6.0	9	6.2	8	8.6	53	6.0
5	12	3.1	12	4.5	3	2.1	5	5.4	32	3.6
6	3	0.8	5	1.9	2	1.3	2	2.2	12	1.3
7	5	1.3	5	1.9	3	2.1	4	4.3	17	2.0
8	4	1.0	1	0.4	3	2.1	0	0.0	8	0.8
9	0	0.0	1	0.4	3	2.1	5	5.4	9	1.0
10+	16	4.1	8	3.0	16	10.9	13	13.9	53	6.0
TOTAL	390	100.0	265	100.0	146	100.0	93	100.0	894	100.0

As Tables 23 and 24 indicate, the hypothesis that radical changers have a greater number of years between degrees than do non-changers is confirmed ($x^2 = 101.25$; $p = .001$). Also, female respondents indicate that they have more years between degrees than do male respondents ($x^2 = 86.71$; $p = .001$). This also confirms the hypothesis that women are more likely to return to school after a period of time than are their male counterparts who are more likely to go "straight through" their formal schooling.

Note that Tables 23 and 24 are based on different calculations of time between degrees. Table 24 contains a total N greater than that of Table 23, because Table 24 includes respondents who are currently pursuing their "last" or "most recent" degree. Table 23 measures the number of years between degrees as the number of years between receipt of the first two degrees, while Table 24 measures the number of years between degrees, as the number of years between receipt of the degree completed prior to the most recent degree, and the year of enrollment in the current or most recent degree program (whether or not that most recent degree was completed). There is, of course, some overlap between Tables 23 and 24; for subjects who received no more than two degrees, the number of years between the first two degrees and the number of years between the last two degrees is identical.

Another important question raised in this study is the possible difference in the fields of study between radical changers and non-changers. It was originally hypothesized that respondents who received a "technical" undergraduate degree would be less likely to experience radical change, than those respondents who majored in the humanities. Instead the patterns of majors for the two groups are remarkably similar, particularly at the undergraduate level ($x^2 = 13.55$; $p = .26$). Some differences occur at the masters degree level, as Table 25 shows ($x^2 = 26.01$; $p = .01$). At the doctoral level, no significant differences are found, but certain trends can be detected ($x^2 = 17.69$; $p = .06$). Radical changers are more likely than non-changers to hold doctorates in engineering and business, and less likely than non-changers to hold doctorates in the humanities, social, and physical sciences. The movement out of engineering and business undoubtedly reflects movement between the academic and business worlds. One might predict that radical changers are also more likely than non-changers to anticipate that they will return to school within the next few years. However, as Table 26 indicates this is not the case ($x^2 = 4.41$; $p = .11$). The only significant differences in findings are between males and females with female respondents more likely to anticipate attending school in the near future than are male respondents ($x^2 = 144.69$; $p = .001$). These results are consistent with the overall trend in the population for women to return to school after a number of years with much greater frequency than men. One can also speculate that since radical changers have for the most part already made a more substantial investment in higher education than have non-changers, one should not expect them to be planning further education.

One could also argue that radical changers have already made their changes and obtained the necessary educational credentials to do so. However, this argument does not hold in light of the finding that radical changers are significantly ($x^2 = 24.66$; $p = .001$) more likely to indicate that they intend to change employer and/or occupation in the near future (Table 27).

TABLE 25

AREAS OF CONCENTRATION - MASTERS DEGREE

Area of Concentration	N	%	N	%
Humanities		21.3		22.5
Social Sciences		21.3		27.8
Physical Sciences		13.2		7.9
Business		7.1		5.3
Education		21.8		11.3
Engineering		6.6		10.6
Health Care		1.0		2.6
Nursing		3.6		0.0
Allied Professions		0.0		0.7
Social Work		2.5		8.6
Law		0.5		0.7
Other		1.1		2.1
TOTAL		100.0		100.0

TABLE 26

FUTURE IN SCHOOL

FUTURE IN SCHOOL	MALE				FEMALE				TOTAL	
	NRC		RC		NRC		RC			
	N	%	N	%	N	%	N	%	N	%
Yes	49	11.0	41	13.0	73	30.0	36	28.0	199	17.0
No	371	80.0	254	80.0	101	42.0	67	51.0	793	69.0
Don't Know	43	9.0	24	7.0	69	28.0	28	21.0	164	14.0
TOTAL	463	100.0	319	100.0	243	100.0	131	100.0	1156	100.0

TABLE 27

FUTURE EMPLOYMENT

FUTURE EMPLOYMENT	MALE				FEMALE				TOTAL	
	NRC		RC		NRC		RC			
	N	%	N	%	N	%	N	%	N	%
Same employer & occupation	281	58.0	168	52.0	62	26.0	33	25.0	544	46.5
Change employer and/or occupation	89	19.0	69	22.0	46	19.0	47	36.0	251	21.5
Not sure	106	22.0	79	25.0	61	25.0	37	29.0	283	24.0
Not employed	6	1.0	4	1.0	72	30.0	13	10.0	95	8.0
TOTAL	482	100.0	320	100.0	241	100.0	130	100.0	1173	100.0

This is particularly true in comparing female radical and non-changers. Overall, female respondents are more likely than are males to indicate that they intend to change employer and/or occupation, that they are not sure about their future employment, and that they are not presently employed ($x^2 = 202.06$; $p = .001$).

Higher Education and Skills and Abilities

This correlation of returning to higher education and radical change could mean that higher education provides the skills and abilities needed to negotiate successfully a radical change, or it may mean that the education provides a credential necessary in order to make the change, or both. Respondents were asked where they learned the skills they employ in their current occupation. It was reasoned that radical changers would be more likely than non-changers to mention a formal degree program as contributing to the acquisition of their present skills. However as Table 28 indicates the data do not support this hypothesis. Instead, radical changers are slightly more inclined to mention on-the-job training, than are non-changers ($x^2 = 10.127$; $p = 7.10$).

TABLE 28

WHERE SKILLS LEARNED

WHERE SKILLS LEARNED	MALE				FEMALE				TOTAL	
	NRC		RC		NRC		RC			
	N	%	N	%	N	%	N	%	N	%
Degree program	115	55.8	84	53.8	77	74.0	37	47.4	313	57.6
On-the-job training	85	41.2	67	42.9	23	22.1	38	48.7	213	39.2
Continuing Education	0	0.0	2	1.3	3	2.9	0	0.0	5	0.9
Other Experience	2	1.0	0	0.0	0	0.0	1	1.3	3	0.5
Natural Ability	2	1.0	1	0.7	0	0.0	1	1.3	4	0.7
Other	2	1.0	2	1.3	1	1.0	1	1.3	6	1.1
TOTAL	206	100.0	156	100.0	104	100.0	78	100.0	544*	100.0

*This N consists of 600 respondents of the sample of 1201 for whom data were coded and analyzed.

Male non-radical changers also differ significantly ($x^2 = 18.93$; $p = .01$) from female non-radical changers in that the males mention a degree program less often and on-the-job training more often than do the females. Degree programs and on-the-job training are the two major areas in which respondents feel that they learned their present skills. The other categories, Continuing Education, Other Experience, and Natural Ability, receive negligible mentions. These findings are consistent with results on the dimensions of skills and abilities used by radical changers in changing jobs reported later in Chapter IV. Many of the most frequently mentioned skills, such as sociability, getting along with other people, and teaching, are more readily acquired in on-the-job experiences than through formal education and training.

Thus radical changers are relying on skills acquired in their previous jobs to assist in making further job transitions. Acquisition of formal education as part of the radical change also contributes to these skills, but is undoubtedly also pursued as a credential useful in making the change.

The RCQ addresses these issues more directly. It was originally hypothesized that radical changers would be more likely to view education required for change as necessary to obtain credentials rather than additional knowledge and skills. Respondents were asked to rate the importance of credentials obtained in additional education in making the radical change. Sixty and one-half percent of the respondents rated credentials high in importance, 13.6 percent medium, and 25.9 percent low; there were no significant differences in the ratings of males and females.

Respondents also rated the contribution of further education to the development of skills and abilities useful in making the radical change. Sixty-five point one percent rate this contribution high, 20.9 percent medium, and 14.0 percent low. This is surprising considering the previous finding that radical changers are less likely than non-changers to attribute the acquisition of their skills and abilities to formal educational processes. However, the results are not necessarily inconsistent. Radical changers rate education as important when asked directly about its contribution to the development of skills and abilities; when given the choice between formal education and on-the-job training as the source of their skills and abilities, radical changers are about equally divided between mentions of the two. It is only in comparison to non-radical changers (particularly among females) that radical changers are less likely to mention formal degree programs.

Furthermore, those radical change respondents who did not obtain additional education as part of their change were asked to rate the extent to which education would have improved their ability (or now would improve it) to perform satisfactorily in their new job. Seventeen point three percent rated this potential contribution of education as high, 17.9 percent as medium, and 64.0 percent as low. Thus, the respondents who did not obtain additional education do not tend to believe that it would have helped them in their job performance.

Radical Changers' Experiences with Institutions of Higher Education

A special section of the radical change questionnaire was constructed to elicit respondents' experiences with educational institutions for those who returned to school or wished to return to school after a period of absence. Of the 263 radical changers in the prime age group who returned the questionnaire, 121 also completed this "blue sheet" questionnaire section. Of these, 75 percent had obtained additional education, 17 percent would like to have obtained additional education, and 18 percent did not indicate whether or not they did in fact return to school to pursue additional education.

The blue sheet asked respondents to describe in an open-ended format their experiences with institutions of higher education on the following

dimensions: admission requirements, financing, counselling, curriculum requirements, presentation of programs and courses (scheduling and locale), availability of school resources, and other factors salient to the responding individuals. Finally, respondents were asked for their recommendations for change in the policies of educational institutions and government as they relate to the treatment and needs of persons returning (or desiring to return) to school after a period of absence.

In the area of admissions requirements, the specific experiences most often mentioned (in order by number of responses) were entrance exams, previous grades, requirements for full-time attendance, age or number of years away from school, course prerequisites, and financial considerations. Of those commenting on admissions requirements, 58 percent made comments that were very positive or somewhat positive, 30 percent of the comments were very negative or somewhat negative, and 12 percent were neutral. Highlights of recommendations for admissions policies for older students include the following:

> "Special entrance examinations specifically designed for those long separated from the classroom recognizing inevitable memory loss of factual data and unfamiliarity with some current material."
>
> "Institutions should give credit to life training or previous job experiences when reviewing a student's record."
>
> "Limit candidates for terminal degrees in proportion to career opportunities and their (the candidates) talents and abilities to fulfill an expressed goal."
>
> "Allow anyone with a BA or BS to return on a non-degree basis."
>
> "Consideration of an applicant's life experiences should be given when applying for admission to a college or university."

Comments on the financing of higher education for the returning student tended to focus on scholarships and other financial assistance provided by the school. A number of respondents also discussed financial assistance provided by their employers, or the need for such assistance. Again, positive experiences outweigh negative ones; 70 percent of the comments are positive, 20 percent negative, and 10 percent neutral. The following comments are representative of the recommendations most often made:

> "There should be some cognizance taken of people with families. It is very difficult to survive on a typical teaching assistantship if you have other mouths to feed."
>
> "Not all financial aid has to be direct. The free student tutors which I took advantage of in two courses helped me 'make it.'"

"I would recommend that financial aid to be made more readily available to BS candidates who are out of the neat and supporting themselves. Industry sometimes helps out with part-time education, but it's much more difficult to pursue a full-time curriculum."

"Financial support for part-time students and middle income students."

Counseling experiences and needs appear to be less salient to respondents than either admissions policies or financial considerations. Of the 121 respondents, 40 mention a specific counseling experience or need, whereas 78 commented on admissions policies, and 69 on the financial aspects of returning to school after a period of absence. Of those mentioning counseling, the respondents are about equally divided among those referring to pre-admission counseling, advice on course selection, career counseling, and job placement. Respondents are also equally divided between those making positive and negative comments on their counseling experiences (or lack thereof). Examples of these comments and recommendations include:

"Many older students have real fears of getting back into the system. Counseling could make it much easier."

"There should be an orientation period going over course requirements, facilities of school, research techniques, etc."

"Educational institutions, and particularly departments, should do more to communicate to prospective students their teaching philosophies. For example, is the orientation humanistic or scientific, ...These orientations are too often learned after matriculation when personal resources are already committed, and it is too late to change institutions."

"Local off-campus guidance should be available for women who have been homemakers and have unrealized but nonetheless marketable skills."

"I feel that counseling programs should be made available to do more than rubber-stamp registration forms."

"Work with prospective students to assist in getting really clear what they want from their education and why, especially how they're going to use it. Also, the costs of education regarding lost time in job experience, etc."

Interestingly, these comments consistently reflect the returning student's need for a curriculum or course of study relevant to individual needs, particularly concerning his or her career goals. These needs are also undoubtedly present in younger students, but may not have the salience that they do for the returning student. The older student, who has had an opportunity to assess the working world, and probably has a better understanding of his or her place in that world, may be especially frustrated to

discover that institutions of higher education do not tend to cater to individualized needs or goals. Older students are particularly likely to balk at course requirements which they do not consider useful to their careers, and to desire both courses and counseling which take into consideration their particular needs.

This interpretation is clearly corroborated in the results on curriculum and course offerings. The greatest number of comments reflect the desire for course offerings geared to individual needs; desire for a wider range of course options and more job-related courses are the second and third areas most often mentioned. Other comments include the need for more stimulating, more flexible, more intellectual, and more practical course offerings.

> "Skip the emphasis on math and theory that has very limited use in business."

> "Schools will never understand what it is like to have spent a great deal of time and effort in obtaining an education only to be repeatedly frustrated in trying to apply that education to the practical realities of the job market."

> "Courses should be less a product of the egos of the professors and more oriented to the needs of the students (i.e., preparation for employment)."

> "More consideration of credit for life experiences could be given, e.g., greater emphasis on research and dissertation and less on course work, which is sometimes overlapping."

> "I wish there was less dependence on major formal papers. I wish the University was more interested in my performance in the field and could see the application of what I have learned in action."

Curriculum requirements are also frequently mentioned as problematic for the older student:

> "Do not have 'residency' requirement. Do not require even one semester of full-time work."

> "My school recently put a time limit on completing course work. People with careers and families should be allowed as long as it takes to get program done."

Comments on the scheduling of courses reflect the returning student's need for evening, and especially, weekend classes. Many respondents mentioned the limited course offerings and the limitations of faculty members in programs not offered during the regular day-time program.

> "Think that programs should be set up on Saturday so that one would not have to attend school after working all day."

"Flexibility of scheduling and course offerings was a major factor in helping me. Week-end and week-long seminars over several year period helped in addition to summer classes."

Very few respondents commented upon the locale of instruction or upon the availability of school resources (e.g., access to libraries and other facilities, days/hours available to working adults). Evidently these areas are not as major considerations for the older student returning to school as admissions policies, financial considerations, counseling and course needs, and flexibility in course scheduling.

Responses to the question asking individuals to describe "other factors" important in their experiences with educational institutions predictably cover a broad range of topics. Most, however, reflect a perception that educational institutions are not sensitive to the needs of older students, especially older part-time students. Instead, all of the advising, courses, student services, social life, campus activities, are geared to the younger full-time students. Some returning students have misgivings at the outset about their ability to adjust to student life; these are only compounded by the institution's lack of sensitivity.

"Separate students who are continuing thru the system of education non-stop from those who are returning. Returnees are more directed and demanding - we know what we want."

"...always had the impression that working individuals earning advanced degrees on a part-time basis were not given any special consideration - were treated as a necessary evil - and not academic as compared to 'professional' full-time students who drifted from class to library....."

"I feel that some educational institutions need to make major changes in their policies, at present they are set up to meet the needs of young adults. They need to broaden their outlook and set up policies to meet the needs of middle aged persons."

"...when you have worked and been responsible for yourself, school sometimes is a return to childhood."

"I would hope universities and industry could find programs to establish cooperative ties. I would think industrial professionals could offer their experiences as part of an educational program and would in turn receive periodic updating of their technical abilities."

"Have found without fail that those instructors who have spent some time in private industry were far superior in their ability to reach the students (specifically in technical areas)."

"Faculty sometimes loses sight of fact that persons returning to school are part-time, mature adults with other responsibilities rather than full-time youthful students."

"My school is doing what I would recommend - they now have programs which are only for pre-educated students who are therefore older and more mature. In order to enter, You must have some degree or professional diploma."

"Have students' alma mater continue efforts toward life long educational programs, 'traveling road shows,' etc."

"Educational institutions need to work with and develop with local industry courses and curriculum that meet their (older students') needs. 'Canned' curriculum is fine for education leading to a degree, but specialized curriculum is needed to serve the needs of individuals with special needs."

"On significant occasions I found young teachers testy and ever unpleasant in their treatment of me as an older person. My last experience was enough for me to drop an MBA program."

D. How Occupational Changers Make Occupational Shifts

The work histories of this group of university graduates, as evaluated by HRC criteria, substantiate recent findings of frequent occupational change after initial labor force entry. Since many of the alumni whose work histories were studied are highly trained professionals and managerials, the question of how they made the occupational shifts is of considerable interest. Special importance was given to examining the respondents' descriptions of transferable skills which were utilized to negotiate job changes.

An extensive effort was made to locate a suitable framework for investigation of the question of how these occupational shifts were negotiated. A major objective of the study was to investigate the "how" of occupational shifts by making inquiries concerning transferable skills and abilities. This search has yielded limited results for reasons which are best developed by McKinlay (1976) in his review of literature and research in this area. Satisfactory criteria for identification and classification were not found. One part of the problem relates to the overwhelmingly professional and managerial character of the population. A more serious problem relates to the limited capacity of any available job or worker trait classification scheme to provide a framework for the desired analysis.

One possible approach would be to look at the question of transferability of skills and abilities in terms of concepts of job analysis. In such a framework the tasks which comprise a job are identified and described in terms of: 1) aspects of the job, or 2) characteristics of the workers occupying such jobs.[31] The job analysis approach presents several problems. Our interest, however, is in shifts between occupations, not just jobs. No general job description will necessarily specify the particular aspects of the job left or the job/occupation entered which may be crucial to the capacity to make the move. Second, general worker traits may not be relevant to the capacity of a particular individual to make a designated career shift. Because most of the shifts are within the professional-managerial categories utilized by the DOT code, the differentiations made by the job analysis approach are not likely to be sharp enough to provide sufficient explanations. This is true in relation to specifications of job tasks and for worker-related characteristics. The most prominent and comprehensive worker-oriented classification system for jobs is the Worker Function Ratings Scale used in the Dictionary of Occupational Titles, 3rd Edition. This scheme provides for rating of every job according to the level of involvement of the worker with Data, People, and Things. A trial effort by HRC to apply this scheme to career sequences of a sampling of Alumni indicated that the differentiations in ratings

[31] Examples of job-oriented variables are typing, recording, and etching. Relevant technological or operatioss-related activities are often difficult to specify for professionals. Worker-related activities which can be described in terms of human behavior are easier to apply to professional occupations. Examples are: engaging in decision-making, communicating making, and visual discriminations. A major problem here lies in the difficulty of ascribing characteristics to each job title so that the uniqueness of the particular job is established.

were insufficient for purposes of this study.[32] Other investigators who have developed job analysis schemes are Primoff (1957), Morsh (1967), Christal, and Madden (1961). These schemes mainly utilize job-oriented analysis. Other worker-oriented job classifications have been developed by McCormick (1972) and Fleishman (1967). Cunningham (1971) has developed a scheme which rates components of jobs by human attributes. His work elements include both worker-oriented as well as job-oriented variables.

The major alternative to developing job classification schemes based on job duties is to classify them by worker characteristics, most particularly interests and aptitudes. Worker traits address two aspects of job choice and performance, abilities and preferences. Abilities include both physical demands and aptitudes. Preferences include interests, temperaments, personality, and values. These are more amenable to modification than abilities. The work of Roe (1956), Super and Cretes (1962), Scovelle (1972), and McLaughlin and Tiedman (1974), is illustrative of investigations which focus on the association between worker interests and work. One of the serious problems of interest classification schemes is that most job titles tend to fall into a small number of the categories. This is one of the widely noted characteristics of John Holland's (1966) hexagonal model of the relationships among occupational personality types. Almost 73 percent of his occupational titles fall into one of his six personality categories, the realistic category. One evaluation of worker trait schemes is that they are helpful in the process of identifying common skills in jobs. Work on association of job duties and worker traits is in progress, but to date cannot be used to predict what collections of tasks, i.e., jobs, can be undertaken by a particular individual.

Because The Dictionary of Occupational Titles (DOT) coding scheme was utilized, any analysis of resultant data to some extent reflects the orientation of this socio-economic classification system. Jobs and occupations are classified in this scheme (as in the U.S. Census occupational classifications) by status of the occupation.** Thus, the radical shifts under study are expressed in terms of movements from or between occupations which are classified according to status. Movements between bookkeeping and accounting, for example, are considered a radical change by HRC criteria because the former is considered non-professional and the latter professional. Movements between personnel or labor relations positions and many administrative capacities are also considered radical. Thus, the fact of occupational shift is in part defined by status considerations built into the coding scheme. This distinction may become clearer if an alternative scheme is considered. If McKinlay's functional classification of occupations (1971) had been utilized, bookkeepers and accountants would be classified in the same

[32] As in the case of use of the Prestige Scale, use of Worker Function Ratings is hampered by lack of sufficiently detailed job titles for many persons in the sample. Also, though job responsibilities of persons in the sample changed in many cases, ratings often did not.

gross category, i.e., Bookkeeping and Accounting occupations. An example of how seemingly diverse groups are organized together by function (following McKinlay) is shown by groups included under Organization Management: administrative occupations, clerical occupations, and bookkeeping/accounting occupations. A different definition of occupational shift would have been necessary if this scheme had been used.

No alternative coding scheme to the DOT codes with sufficiently detailed job titles for our purpose exists. For this reason the DOT codes were used. The original intent had been to look at the incidence of radical change as evidenced by movements between Holland's personality types as well as according to McKinlay's functional classification. This was not done because of 1) limitations in time and resources, and 2) because of limitations in number of available job titles and the need to translate these (in the case of McKinlay) into DOT codes for purposes of data manipulation.

We concluded our search for an analytic framework for identification of transferable skills by accepting the present limited state of the art. The approach was to secure information concerning the "how" of the occupational transition by asking radical changers to list important transferable skills and abilities which enabled them to make their shift. It was suggested that they consider such skills as:

> "Skills related to the manner in which work is done....; skills related to the actual doing of the work....; and interpersonal skills...." Examples were given of each type of skill with ample space for a reply. Respondents were also asked to state where they had obtained the transferable skills.

We secured some guidance in its formulation from the work done by Wiant (1977) who developed a composite list of transferable skills identified by employers representing most major sectors of the economy. Following Wiant, additional material was obtained on personality traits and aptitudes.

1. Factors Facilitating Occupational Change. HRC initiated the exploration of the "how" of occupational shift by asking the radical changer respondents to specify the most important factors which influenced realization of their expectations of the new job/occupation. The responses were diffuse, but suggestive (Table 29). About a fifth of the two hundred fifteen respondents (20.5%) who contributed information reported a commonality of tasks involved in the two occupations. A like proportion (19.1%) reported being helped by their education. About one in seven (13.5%) referred to experience and competence. Also mentioned were a variety of personal traits other than competence. There were also two references to financial aspects of the job by 13.5 percent of the respondents: 1) in relation to salary received and 2) in relation to family backing.[33]

[33] Family support includes both financial and psychological support.

TABLE 29

FACTORS FACILITATING OCCUPATIONAL CHANGE

Motivators**	N	%*
Responsibility, opportunity for	36	16.7
Growth, opportunity for	24	11.2
Gratification of the work	19	8.8
Promotion, opportunity for	17	7.9
Other motivators	18	8.4
Hygienic Factors (including salary)***		
Working conditions control of time travel, life style	43	20.0
Interpersonal relationships on job/ congeniality of fellow workers	39	18.1
Supervision, quality of	11	5.1
Job security/tenure	4	1.9
Salary	29	13.5
Tasks	44	20.5
Education	41	19.1
Experience/competence	29	13.5
Personal traits not otherwise mentioned	41	19.1
Family, support of	29	13.5
Other	50	23.3

*Percentages refer to number of respondents
N = 215
Number of responses = 474

**24.0% of responses

***26.6% of responses

A number of the radical changers discussed the "how" of their realization of expectations in terms of Herzberg's motivators (24.4% of responses). These responses, however, are not considered germane to the question at hand, i.e., "how" the transition was managed and are discussed in a later section of this report. Another quarter (26.6%) of the responses dealt with aspects of the work place included among hygienic factors. About one in five (20.0%) of the radical changers mentioned working conditions (taken in the broad sense used by HRC) as a major facilitator.

About one-fifth (18.1%) of the respondents reported having been helped by members of the staff in the new situation. This is one of the few occasions in which personal relationships on the job drew considerable comment from respondents. Though no evidence has been found to substantiate the theory that workers are pulled to occupations which employ workers with personalities similar to or congenial to the new entrant (changer), these respondents did report co-workers as facilitators of the change. It is quite possible that co-workers helped occupational changers learn what was expected in the new environment and how to adapt previously developed skills to the new situation. They may also have provided emotional support and helped reduce anxiety. One element in the new work place which might be looked to for additional support in transition-making would be the supervisory personnel. This does not appear to have been the case. Only a few respondents (5.1%) mentioned the quality of supervision as having been an important facilitating factor in transition-making.

In summary, the most important factors which were identified by radical changers as helping them meet their expectations related to commonality of tasks, education, personal traits, including experience and competence, and support, both within the workplace and at home. Family support is interpreted as relating to both financial and psychological. The reports of salary as a facilitating factor can be interpreted as giving recognition to the importance of earned income in providing an economic foundation for the change.

Respondents were more successful in pinpointing the most important negative factors impeding their occupational shift than in specifying the positive factors (Table 30). The most important areas of problem were company policies and administration (20.6%), and the character of the work which was encountered (19.4% of responses). Other important problem areas were personal characteristics and problems with pressure and competition, problems with other staff members (14.3%) and financial pressures. Financial difficulties were mentioned in several ways: as inadequate salary (6.9%), as problems related to company or the individual (12.0%) and as family obligations (5.7%).

In addition to the cluster of comments identifying characteristics of the work (tasks) as a major problem in the transition, two other clusters of comments dealt with closely related issues. A number of respondents (19) reported they had lacked necessary experience to perform satisfactorily (10.9%) and eighteen saw a major problem in the lack of education or necessary skills (10.3%).

In summary, a large portion of the response concerning factors impeding occupational change pertain to hygienic factors: conditions in the work

TABLE 30

FACTORS IMPEDING OCCUPATIONAL CHANGE

Motivators**	N	%*
Promotion, lack prospects for	7	4.0
Hygienic Factors (including salary)***		
Company policies and administration	36	20.6
Interpersonal relationships on the job/lack of congeniality	22	12.6
Security, job/tenure, lack of	3	1.7
Salary, inadequate	12	6.9
Tasks (character of the work)	34	19.4
Personal characteristics/problems with pressure/competition	25	14.3
Finances (personal/company)	21	12.0
Experience, lack of	19	10.9
Education/skills, lack of	18	10.3
External labor market	14	8.0
Politics	14	8.0
Discrimination (age, race, sex, job)	11	6.3
Family obligations (financial/child care, etc.)	10	5.7
Location	9	5.1
Government	8	4.6
Other	45	25.7

*Percentages refer to number of respondents
N = 175
Number of responses = 308

**2.2% of responses

***23.8% of responses

place, lack of supervisory support, lack of positive relationships on the jobs, and inadequacy of salary. Problem with salary is only one part of a broader set of financial considerations impinging upon the respondent. Another cluster of impeding factors relate to problems of performance in the changed-to occupation. These may be described as problems with the character of the work, as lack of experience and as lack of necessary education and skills.

2. Transferable Skills and Abilities. Respondents were asked to indicate how it was possible for them to make transitions between two occupations with little or no obvious similarity. Suggestions for an organizational framework based on type of skills were made. Radical changers were asked to list the most important transferable skills which had been utilized and to state where they were obtained. They were asked to consider such skills as those "related to the manner in which work is done; skills related to the actual doing of the work; and interpersonal skills." Examples of each were offered.

The skill clusters were conceptualized after study of Wiant's (1977) composite list of transferable skills developed by approximately 100 employer representatives from a wide range of industries.

We defined skill as the capacity to perform, stemming from knowledge, experience, and aptitudes. Ability is used in the sense of power to perform capably, with competence, faculty, and talent (American College Dictionary, 1958). HRC did not use Wiant's category, attitudes, as a basis for clustering open-ended responses on skills. It was felt that the items listed could be organized into more work-related clusters or as personality traits. Personality traits were defined as the distinguishing qualities or characteristics of a person. A separate question was formulated to provide for direct consideration of the role of personality traits.

A further question was presented on the role of aptitudes in occupational shift. By aptitudes is meant special fitness, capacity, inclination, propensity, quick intelligence, or readiness to learn. The question on aptitudes was included because some of the skills listed by Wiant's employer representatives fell in this category. A comprehensive array of work-oriented aptitudes was presented to respondents in the form of a check list. These were derived from Holland's (1973) work. Finally respondents were asked to review their designations of transferable skills (with the implication that skills included personality traits and aptitudes) and to describe the extent to which transferability of skills accounted for the capacity to make the shift.

The number of respondents to this portion of the Radical Changer Survey itemized over 800 skills and abilities which they believed to account for their ability to make an occupational transition.(Table 31). Almost half (47.5%) fell in the area of skills related to planning, organizing, and the setting of priorities (17.4% of all responses). Another large cluster (7.3%) dealt with pre-decision-making functions, i.e., assessment and analysis of problems and synthesis of resulting information (5.1%). Another cluster of responses (1.9%) dealt with management of the firm or of management of people. Also frequently mentioned were skills related to speaking, teaching (5.3%) and writing (6.5%).

TABLE 31

TRANSFERABLE SKILLS AND ABILITIES ENABLING OCCUPATIONAL CHANGE

Skills Related to the Manner Work is Done*	N	%
Planning, organizing, setting priorities	140	17.4
Synthesizing (assessing problems, analyze)	58	7.2
Writing (including report writing)	52	6.4
Speaking (public) and teaching	43	5.3
Decision-making/solving problems	41	5.0
Managing (business/personal)	15	1.8
Other skills related to manner work is done	36	4.4
Skills Related to the Actual Doing of the Work**		
Technical Expertise (specific)		
Accounting	17	2.1
Mathematics/physics	15	1.8
Legal knowledge	13	1.6
Medical knowledge	12	1.5
Other technical expertise	63	7.8
General Skills		
Administrative/managerial	33	4.1
Research	25	3.1
Financial knowledge	20	2.4
Business skills	10	1.2
Other general skills	35	4.3
Tools		
Typing	14	1.7
Computer programming	13	1.6
Other tools	23	2.8
Interpersonal Skills***		
Supervise	33	4.1
Communicate	27	3.3
Motivate	24	3.0
Selling	11	1.4
Other interpersonal skills	38	4.7
TOTAL RESPONSES	811	100.0%

*47.5% of responses
**36.0% of responses
***16.5% of responses

The nature of this list of skills was most likely heavily influenced by the characteristics of the respondents. Many are trained managerials or professionals acting in managerial capacities. A large number have moved into job titles which imply leadership roles. The skills listed relate to qualities required for such positions. Some of these skills, especially the oft mentioned planning, organizing, and setting of priorities pertains to the work of all persons operating in professional capacities. Speaking, teaching, and writing (including report writing) are closely related to the occupational needs of many changers in the population, especially the academics and other teachers and those who moved into journalistic endeavors. These skills are closely identified with the legal profession, a large number of whom are represented in the changer population.

Whether occupational shifters are utilizing specific skills and expertise to make career track shifts is a question of special interest. For, while the origins of general or managerial-type skills are difficult to identify with specific learning situations on experiences, the sources of specific skills should be easier to trace. This information contributes to one of the central issues of this study, the role of various types of education in career shift and the timing of their acquisition.

Over one-third (36%) of all the reported responses concerning transferable skills described specific skills or skill areas. Over 100 responses (14.8%) mentioned such technical expertise as accounting, mathematics or physics, legal and medical knowledge, architecture, or pedagogic training. Another almost equally sized group of responses (15.1%) described skills which were seen as specific in nature, but which could not be identified with particular discipline. These included specific administrative and managerial skills, research experience, a knowledge of finance and related issues, and specific business skills other than purely administrative and managerial.

A full fifty responses (6.1%) identified specific skills which might be described as tools. The two most frequently mentioned tools were typing (14 responses) and computer programming (13 responses). Another twenty-three specific skills on the tool or instrumentality level were mentioned.

It may be argued that both typing and computer programming represent full-fledged profession-specific skills. This may apply to typists and programmers. However, the population under study did not contain many typists *per se*. While there are many one-time computer programmers in the population, it was not observed that movement of such personnel was into programming positions. On the contrary, programming seemed to be an entry-occupation into careers in the data processing and certain other fields. Therefore, for purposes of this study, programming and typing skills are being treated as tools rather than as the core skills of an occupation.

The third group of skills reported by respondents were categorized as interpersonal (16.4%). These include the ability to supervise (4.1%), to communicate (3.3%), to motivate (3.0%), to sell (1.4%) and other

interpersonal skills (4.7%). All of these skills, with the possible exception of selling, can be used in most occupational settings and environments. They are skills which pertain to various aspects of the role sets of professionals as well as managerials. The interpersonal skills most frequently mentioned may be viewed as an elaboration of the people-management skills included in the first major category of skills, i.e., skills related to the manner in which work is done. A number of respondents who mentioned management of people per se as one of the important transferable skills went on to elaborate by describing specific interpersonal skills utilized in people-management. While these skills are generic to most work situations, they are skills heavily identified with the managerial and senior-professional statuses of many of the alumni.

In summary, almost half of the transferable skills mentioned by radical changers related to the manner in which work is done, while a little over a third dealt with skills which could be related to the actual doing of the work, i.e., specific technical expertise or knowledge. Some of the work-related skills mentioned could be interpreted as generalizations of managerial-type responsibilities which were described in detail in discussion of the manner in which work responsibilities are executed. A much smaller proportion of the responses dealt with interpersonal skills as such.

3. Sources of Transferable Skills and Abilities. One of the major foci of this investigation is the source of transferable skills and abilities. To obtain respondent perceptions alumni were asked to state the source of each skill which was mentioned. This was done in the great majority of instances (93.7%). About one-third (34.1%) of the responses dealt with educational experiences, most of them in formal degree programs (29.1%) (Table 32). Only five percent of the responses described learning outside of formal degree programs. About three out of ten responses (28.7%) dealt with learning acquired in previous places of employment, while almost one in four (22.9%) attributed the skills to general life experience.

Another small group of responses (5.4%) described their skill sources as embodied in their personality structure, psychic make-up, or some other innate aspect of their character.

Each respondent mentioned an average of 3.8 sources of skill. In this light it is probable that most respondents have mentioned several sources of skill acquisition for (usually) more than one skill.

4. Personality Traits Contributing to Occupational Transition. Personality traits, by definition, are related to the characteristics of individuals, not their work. However, because of the confusion between skills, abilities, and personality traits, as evidenced in Wiant's list (Appendix C), respondents were urged to specify any personality traits which they strongly felt enabled them to make their occupational change. The number of responses was sufficiently large (483) as to suggest that respondents felt personality traits played an important role in their experience in occupational shift (Table 33).

TABLE 32

SOURCES OF SKILLS AND ABILITIES
UTILIZED IN MAKING OCCUPATIONAL SHIFT

	N	%
Formal degree	221	29.1
Work experience	218	28.7
General experience	174	22.9
On-the-job-training	49	6.4
Inmate	41	5.4
Other education	38	5.0
Other	19	2.5
TOTAL RESPONSES Number of Respondents = 201	760	100.0%

TABLE 33

PERSONALITY TRAITS FACILITATING OCCUPATIONAL SHIFT

Traits Involving People-Orientation*	N	%
Adaptability/flexibility ("well-adjusted")	39	8.1
Congeniality	32	6.6
Preference for working with people	18	3.7
Leader/persuasive personality	18	3.7
Trustworthy/sincere	12	2.4
Extroversion	10	2.0
Follower	9	1.9
Other Traits Involving People Orientation	32	6.6
Traits Involving Achievement-Goal Orientation**		
Self-confidence	31	6.5
Self-reliance/self-directed/self-discipline	26	5.3
Determination/perserverance	26	5.3
Achievement orientation/strong work commitment	18	3.8
Aggressiveness	14	2.9
Patience	12	2.5
Risk-taking	11	2.2
Ambition	11	2.2
Personal motivation	11	2.2
Industrious	9	1.9
Challenge, drive for intellectual	8	1.7
Independence	8	1.7
Other traits involving achievement-goal orientation	25	5.2
Traits Related to Doing of the Work Itself***		
Intelligent/capacity and willingness to learn	27	5.6
Ambiguity, capacity to tolerate	8	1.7
Well-organized	6	1.2
Effective	5	1.0
Detail-orientation	5	1.0
Other traits related to doing of the work	31	6.5
Other Personality Traits		
4.3% of all responses	21	4.3
TOTAL RESPONSES	483	100.0%

*35.2% of responses
**43.4% of responses
***17.0% of responses

While the importance of ability to relate to people loomed high in the consciousness of alumni changers, the major emphasis was on capacity to mobilize oneself for purposes of achievement. More than four out of ten (43.4%) of the facilitating personality traits mentioned related to achievement-goal orientation. The traits most frequently mentioned describe persons who possess a strong sense of personal adequacy and capacity for acting with a high degree of autonomy. These traits include self-confidence (6.5%), self-reliance/self-directed/self-discipline (5.3%), and independence (1.7%). The radical changer alumni also saw themselves as having the drive and tenacity necessary to achieve their goals. They described this drive and tenacity in terms of the following traits: determination/perseverance (5.3%); achievement orientation/strong work commitment (3.8%); aggressiveness (2.9%); willingness to become involved in risk-taking (2.2%); a high level of personal motivation (2.2%); ambition (2.2%); industriousness (1.9%); and independence (1.7%). A number of responses (2.5%) mentioned patience as an important facilitating trait. Also mentioned was the desire for intellectual challenge (1.7%). Since opportunity for professional growth and increased responsibility were very frequently presented as motivators of occupational shift, the very occasional reference to the issue of intellectual challenge may be taken to mean that this quality is not seen as a personality trait.

In specifying important facilitating personality traits alumni made only modest mention (17.0%) of traits related to the doing of the work itself. Cited most often was the capacity and willingness to learn to meet the demand of the new occupation or environment (5.6%). Other traits mentioned were capacity to tolerate ambiguity (1.7%); good organization (1.2%); personal effectiveness (1.0%); and capacity to tend to details (1.0%).

The reluctance to attribute success in transition-making to personality traits related to performance of a new set of tasks or a drastically different environment is understandable. Personality traits, by definition, relate to the individual's ability to organize and mobilize self and to relate to others in pursuit of goals; in this case, work performance is seen in the broadest sense. The paucity of responses concerning traits related to actual work performance in the narrow sense suggests that the alumni under study believe that they can perform if they so desire and organize themselves to do so. The small response also suggests that personality traits do not represent an appropriate concept by which capacity to undertake and successfully perform new tasks may be studied. On the other hand, the response may also suggest that the tasks are not as dissimilar from previous work as would seem from job title change.

5. Aptitudes Facilitating Occupational Shift. An additional question concerning transferable skills and abilities dealt with aptitudes. Alumni were presented with a comprehensive list of work-related general aptitudes (Holland, 1973) and asked to indicate any which enabled respondents to make their change (Table 34).

About half of the respondents mentioned sociability (54.6%) and aptitude for managerial responsibilities (47.3%). About one-third mentioned aptitude for teaching (34.4%) and more than one in four for scientific work (27.1%). About one in five mentioned ability to sell (21.5%).

TABLE 34

APTITUDES CONTRIBUTING TO ABILITY
TO MAKE THE OCCUPATIONAL SHIFT

Aptitudes*	Males		Females		Total	
	N	%*	N	%*	N	%*
Sociability	103	52.6	40	60.6	143	54.6
Managerial	98	50.0	26	39.4	124	47.3
Teaching	66	33.7	24	36.4	90	34.4
Scientific	61	31.1	10	15.2	71	27.1
Sales	47	24.0	9	13.6	56	21.4
Artistic	26	13.3	13	19.7	39	14.9
Office/clerical	23	11.7	13	19.7	36	13.7
Mechanical	23	11.7	4	6.1	27	10.3
Clinical	16	8.2	7	10.6	23	8.8
Manual	17	8.7	5	7.6	22	8.4
Musical	8	4.1	5	7.6	13	5.0
Mathematical	0	0	0	0	0	0
Not applicable	10	5.1	4	6.1	14	5.3

*Source: John Holland, Making Vocational Choices: A Theory of Careers.

**Percentages are based on number of persons in data base.
Males = 196 Females = 66 Total = 262

The frequent mention of sociability as an enabling aptitude is explanable on two counts: 1) it is in line with the emphasis on people orientation which occurred in discussion of facilitating personality traits; 2) it is an aptitude of possible applicability to everyone. The emphasis on aptitude for managerial duties is reflective of the responsibilities which many of the alumni assumed, as indicated by their job titles and detailed job descriptions. The aptitude for teaching which was mentioned by one third of the respondents applies very directly to those who left industry and business for academia. A few respondents additionally left clerical, sales, and other professional, managerial, or technical positions for jobs in education below the university level. Teaching may also be seen as an aptitude involved in the supervisory process. The aptitude for scientific work mentioned by almost one third of the respondents constitutes the response which most clearly describes the nature of the work done. Almost a quarter of all the respondents saw an aptitude for selling as having been important in their transition. This would directly relate to both the professionals who moved into sales representative positions and the business school graduates and other business-careerists who shifted into sales positions. It may be that other respondents interpreted aptitude for sales as selling ideas, goals, or objectives to their colleagues.

A smaller number of respondents identified artistic aptitudes as having been helpful (14.9%). Another group mentioned office and clerical aptitudes (13.7%). Twenty-three respondents mentioned mechanical aptitudes (10.3%) and seventeen mentioned manual aptitudes (8.4%). A few mentioned musical aptitudes (5.0%).

Artistic aptitude may relate to the transitions of a few respondents into teaching of art, the exodus of several academics into photography and graphic layout work, and others into some forms of advertising and public relations. It may also relate to the capacity of some respondents to undertake literary careers. The one in seven respondents who reported aptitude for office and clerical skills as having been helpful most probably includes a few respondents who experienced downward mobility by leaving professional/technical/managerial status for clerical work. However, the size of the response suggests that such aptitudes are helpful in many officially professional, technical, or managerial jobs. Writing and editorial work and many lower level administrative jobs represent good examples of such positions. One in ten (10.3%) respondents indicated that mechanical aptitude was helpful. This aptitude can be helpful in certain types of engineering, in technical work, and, possibly, in certain types of sales.

A number of respondents (8.8%) mentioned clinical aptitude, possibly reflecting the doctors, dentists, psychologists, social workers, and nurses in the population. About eight percent reported manual aptitude (8.4%). These respondents may include shifters who moved into dentistry, typing, various technical positions, art, and recreation. It is more difficult to explain the thirteen reports that musical aptitude had been helpful in transition-making as no transition into a musical career, as such, was reported. Possibly a very few respondents moved into music education. This, however, would not explain the size of the response. Curiously, no report on use of mathematical aptitude helping in transition was reported.

It may be that movement was away from pure mathematics into more applied scientific work. In such instances aptitude for scientific work might have been noted. In the open-ended question on transferable skills, it may be recollected that fifteen respondents volunteered that technical expertise in mathematics and physics had been helpful to them in transition-making (Table 31).

6. Differences Between Males and Females. Very marked differences appeared in the reports of male and female respondents in regard to aptitudes which were found to be helpful. Aptitudes of greater importance to males than females were managerial, scientific, sales, and mechanical. Of greater help to women were sociability, artistic, office-clerical, and clinical aptitudes. Women also reported slightly more frequently than men facilitation of shift by teaching, clinical, and musical aptitudes. Men reported manual aptitudes slightly more often than women.

The differences in male-female reportage are seen as reflecting the sex segregation of occupations. They mirror the differences between the occupations which men and women occupy.

It may be noted that in the instance of teaching, almost as high a proportion of males as females reported that the teaching aptitude had been helpful (33.7%; 36.4%). However, this seeming similarity masks an important difference in how the aptitude was utilized. The teaching often took place in different arenas as almost all the men who entered teaching positions from another field went into academia whereas the women often entered teaching or educationally related occupations. More important, of the ninety respondents who reported aptitude for teaching had been helpful in shift-making; a large minority, forty-three, did not enter the teaching profession or education-related occupations. This suggests that many of the males (and some females) used their teaching aptitude as part of a supervisory function.

7. Evaluation of Role of Transferable Skills. Respondents to the Job Change Survey were asked two summary questions concerning the role of transferable skills and abilities in their occupational shift. First, they were asked to describe the extent to which transferable skills accounted for their ability to make their shift. This was done in the form of an open-ended question. Over two-thirds of the responses (66.9%) indicated that such skills had been helpful (Table 35). About one-fifth

TABLE 35

CONTRIBUTION OF TRANSFERABLE SKILLS TO OCCUPATIONAL SHIFT

	N	%
Skills necessary	44	22.2
Skills helped a lot	61	31.1
Moderately important	27	13.6
Minimally important	29	14.6
Not used at all	8	4.0
Other response	25	12.5
NA	4	2.0
TOTAL RESPONSES	198	100.0%

of the responses indicated the skills had been necessary and that the shift could not have otherwise taken place. An additional third (31.1%) of the responses are interpreted as indicating transferable skills and made a substantial contribution to the shift while 13.6 percent are seen as indicating that previously attained skills aad been moderately helpful. Only four percent of the responses indicated no utilization of previously acquired skills. About one in eight responses were of another nature.

In summary, the respondents have indicated that transferable skills have played an important and sometime critical role in their occupational change. For the minority who reported that such skills were of moderate or of no known relevance to adaptation to the new occupation, the question of how the transition was managed remains to be answered. Possibly these are the most radical of all changers. These may be the group who undertook further education to obtain their occupational goals.

8. The Common Thread. The second attempt to obtain respondents' evaluations of the role of transferable skills in their occupational transitions was made in the form of a request for their "concluding thoughts" in the last section of the RCQ. Radical changers were told that investigators had noted many common elements in seemingly different occupations. They were asked to state, on the basis of their experience, whether they saw a "common thread" connecting the "changed from" and "changed to" occupations. The responses from almost two-hundred of the participating radical changers (75%) strongly affirmed the importance of transferable skills in seemingly desperate occupations. Almost 42 percent (41.8%) of the radical changers who responded to the question indicated that essential skills required in each occupation were similar (Table 36). Almost a fifth (18.9%) of the respondents made statements to the effect that the field was the same. Almost as many (17.3%) submitted comments related to the similarity of tasks. Almost as many (16.8%) reported similarities in education or training, the remaining comments pertained to motivating and hygienic factors which do not contribute to an understanding of transferability of skills between different occupations.

TABLE 36

THE COMMON THREAD CONNECTING THE "CHANGED FROM" AND "CHANGED TO" OCCUPATION

	N	%*
Skills, use of	82	41.8
Field, same as	37	18.9
Tasks	34	17.3
Education/training	33	16.8
Opportunity for growth/use of creativity/natural abilities	25	12.8
Other motivators	43	21.9
Hygienic factors (including salary)	34	17.3
Other	20	10.2

*Percentages are based on number of respondents
N = 196 Total number of responses = 308

The comments on "the common thread" suggest that more than four in ten of the occupational shifters who responded see themselves utilizing previously acquired skills to a significant extent. There are suggestions in the data that another large group does not. First, 66 radical changers who participated in the second survey did not respond to the question. Some, no doubt, did not because of the position of the question near the end of the instrument. However, others might not have responded because of lack of relevance. In addition, the respondents who described their two occupations as "being in the same field," "involving the same tasks," or as requiring "similar education" are in the distinct minority, somewhat less than one-fifth of the respondents in each category. Since each respondent contributed on an average of 1.6 comments each, some over-lapping of commentary is likely. Since we do not know the extent of over-lapping, it can only be stated at this time that a large proportion of the radical changers in the survey report strong elements of commonality of skills or variables which may serve as surrogates for skills, i.e., similarily of tasks performed, field, and sources of skills. However, another very large group did not emphasize such commonalities, but addressed their remarks to other issues most of which could be interpreted as motivators or hygienic factors in Hertzberg's dichotomy.

The most frequently mentioned motivator (12.8%) common to both "from-and-to" occupations was opportunity for professional growth. This was sometimes expressed in terms of opportunity for use of creativity or natural abilities. Over a fifth (21.9%) of the respondents discussed the commonality which they perceived in terms of other motivators such as opportunity for achievement or for recognition of achievement. More than a tenth of the respondents (11%) mentioned hygienic factors. These include commonalities such as company policies, quality of supervision, job tenure, or level of salary. Ten percent also discussed commonalities in other frames of reference too diffuse for generalization.

In as much as about two-thirds of the respondents felt that previously attained skills had been helpful in transition-making (Table 35) the subject is relevant to some degree to a majority of the radical changers who responded to the question. The question remains as to whether or not they were critical, i.e., could the transition have been made without them? Only about a fifth of the respondents (22.2%) made this statement. On the other hand, over 40 percent stated that there was commonality of skills in their two sets of performances. It may be concluded that transferable skills have played an important, but not necessarily crucial role, for about 40 to 50 percent of the respondents and played some contributory role in the case of as many as another 20 percent.

The indication that a large proportion of the radical changer respondents do <u>not</u> attribute crucial importance to previously acquired skills in their subsequent job performance is of interest in another perspective. Less than 40 percent of the radical changers initially agreed with HRC's designation of the specified job change in their work history as a radical occupational shift (Table 37).

TABLE 37

NATURE OF OCCUPATIONAL CHANGE:
EVALUATIONS BY HRC-DESIGNATED RADICAL CHANGERS

Quality of Change	N	%
Radical	92	37.6
Non-Radical	147	60.0
Aspects of each	6	2.4
TOTAL	245	100.0

Yet, after having gone through the process of considering the various aspects of the two job experiences in their work history, a large percentage of those who did not see themselves as radical changers apparently were unwilling to attribute an important (not necessarily crucial) role in the transition between the two positions, whether viewed as change in position or as occupational shift.

E. Exploration of Other Factors Related to Occupational Mobility: Herzberg's Motivators

None of the preceding attempts to associate occupational change with possible explanatory variables are very convincing. Neither labor market conditions, income considerations, the relocation issue, nor status considerations appear to be central to attempts to explain motivations for change.

Some of the writings on professions and professionalization (Ritzer, 1972; Greenwood, 1957; and Wilensky, 1964) suggest possible explanatory variables. Ritzer states that the six most frequently mentioned variables which characterize a profession are: 1) the existence of general systematic knowledge, 2) authority over clients, 3) community orientation vs. self-interest, 4) self-control versus outside control, 5) recognition by the community and law that the occupation is a profession, and 6) a distinctive culture in which the individual operates. There is much discussion in the literature over the extent to which occupations meet these criteria. Etzioni (1969), for example, delegates certain occupations to semi-professional status because of inability to establish that criteria such as the above are adequately met. Ritzer holds that an occupation's position is determined by the number of these characteristics it possesses and the extent to which they exist. However, he explains the ultimate status of occupations is the success of incumbents in enforcing their claims, i.e., their power. Such an explanation relates the desirability of an occupation to the status of the people doing the work rather than on the characteristics of the work itself. Therefore, the low status and rewards of the semi-professions, (i.e., nursing, teaching, social work, etc.) are related more to the inferior status of women than to intrinsic qualities of the occupation as characterized by the above six criteria.

The very existence of some occupations which are labeled professions and which are associated with both status, superior income, and other desired characteristics such as autonomy and control over others suggests that the desire to move into occupations labeled professions which contain a large set of desired characteristics might offer one explanation for occupational mobility. Reiss (1955) offered a framework for testing such an hypothesis by his delineation of five occupational categories: 1) the old (classical) professions, 2) the new professions (the sciences), 3) the semi-professions, 4) the marginal, and 5) the would-be. Unfortunately, job titles for each category are not available nor are the occupational movements of the university population under study sufficiently dispersed over the entire range of occupations so as to attempt explanation of the observed occupational mobility along these lines.

Another explanation for occupational mobility involving a set of values is offered by Sherlock and Cohen (1966) in their discussion of recruitment of dentists. They see occupational choice as being highly motivated by: a) the desire to reach a higher status than one's father, b) perceived minimal difficulty of access, and c) perceived maximal rewards which are defined as high income, prestige, and autonomy. Occupational choice is described in terms of two mini-maxi strategies, i.e., the first consists of locating occupations which offer minimal difficulties of entrance and maximal rewards; the second involves maximization of rewards, but accepting minimal opportunities of access. Occupational change might be explained in terms of collapse of either of the two strategies and a decision to try another occupation for a better outcome.

Of the various multi-faceted frameworks by which motivation for occupational change could be explained, HRC opted to use the two sets of variables included in Herzberg's (1957) two-factor theory.[34] We reasoned that these two sets of variables are the most inclusive and most comprehensive available for our data. Further, they differentiate between validated motivators and variables often regarded as motivators, but which Herzberg holds are actually "dissatisfiers." These constitute the group of variables labeled hygienic factors by Herzberg. The validated motivating factors[35] are: 1) gratification obtained from the work itself, 2) opportunities for advancement and promotion, 3) opportunities for professional growth, 4) opportunity for more responsibility, 5) opportunity for achievement, and 6) recognition of achievement. The hygienic factors which are held to be dissatisfiers rather than motivational factors in occupational behavior are: 1) congeniality of fellow workers, 2) working conditions, 3) quality of supervision, 4) effective employer policies and administration, 5) job security and tenure, and 6) salary. One advantage to use of this framework for examining factors related to occupational shift is that the relative weights of each variable are known. Herzberg holds that all are of equal weight though some are mentioned more frequently than others.

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[34] Herzberg's work is built on the hierarchy of needs theory developed by Maslow (1954).

[35] Herzberg's research was based on study of work motivation of accountants and engineers in Pittsburgh in 1957. He and his associates claim that subsequent studies have validated the work for other professions and also for non-professional occupations.

We used these twelve variables to code the open-ended questions contained in the Radical Job Changer Questionnaire. This material included sections on expectations concerning the occupational shift under study, important factors unrelated to the immediate job and realization of expectations.

1. Expectations Involved in Change. In the course of the series of queries on aspects of radical occupational change respondents were asked to express their expectations concerning their new occupation. Of those who had positive expectations, almost six (57.2%) out of every ten responses were interpreted as falling in the area of Herzberg's motivating factors (Table 38). Opportunity for personal growth was most often mentioned followed by increase in responsibility and gratification obtained from the work itself. A little more than a quarter (28.4%) of the responses dealt with hygienic factors. Of these, the work environment[36] and anticipation of increase in salary were mentioned most frequently. Although much theoretical emphasis has been placed on the pull of workers to occupations in which occupants are alike (Holland, 1973) only very minor attention was given to expectations concerning anticipated interpersonal relationships on the job or congeniality with fellow workers (4.0% of responses).

A very different kind of response was elicited from the few respondents (22) who recalled having had negative expectations. About 60 percent (62.5%) of the negative responses dealt with hygienic factors, the most frequently mentioned concern being salary. Respondents who had negative expectations devoted only a fifth (20.9%) of their comments to the motivating factors (Table 39).

2. Factors Unrelated to the Immediate Job. In the RCO recognition was given to the concept that occupational changes might be motivated by factors not immediately related to the current job. In responding to a question on the primary motivating factor unrelated to the immediate job, alumni tended to discuss issues related to the motivating factors (46.3%) more often than the hygienic (40.7%). About a quarter of the responses concerning hygienic factors related to salary considerations (9.2%).

However, the majority of the responses concerning hygienic factors relate to the work environment (20.9%). Possibly this very strong response concerning a hygienic feature follows from the nature of the question, i.e., articulation of factors unrelated to the immediate job. Possibly this response represents the strongest statement made by alumni concerning the importance of living one's own life in terms of working conditions on the job and freedom in maintaining one's own life style beyond the gate.

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[36] One reason why work environment appears as prominently as it does is because of the broad construction put on it as a hygienic factor. Responses concerning control over one's time, time available to spend with one's family, opportunity to travel, and freedom to maintain a desired life style were included as components of this factor as well as more conventional items concerning working conditions.

TABLE 38

EXPECTATIONS OF THE OCCUPATION MOVED TO

- Positive -

Motivating Factors*	N	%
Personal growth, opportunity for	105	21.0
Responsibility	64	12.7
Gratification of the work	50	9.9
Promotion, opportunity for	35	7.0
Recognition	22	4.4
Achievement	11	2.2
Hygienic Factors (excluding salary)**		
Working conditions/control of time/ lifestyle	54	10.7
Interpersonal relations on the job/ congeniality of co-workers	20	4.0
Security, job/tenure	10	2.0
Supervision	3	0.6
Company policies and administration	2	0.3
Salary	53	10.5
Tasks	46	9.1
Other	28	5.6
TOTAL RESPONSES Number of Respondents = 242	503	100.0%

*57.2% of responses
**17.6% of responses

TABLE 39

EXPECTATIONS OF THE OCCUPATION MOVED TO

- Negative -

Motivating Factors*	N	%
Gratification of the work	3	12.5
Responsibility	1	4.2
Personal growth, opportunity for	1	4.2
Hygienic Factors (excluding salary)**		
Security, job/tenure	3	12.5
Working conditions/control of time/ lifestyle	3	12.5
Interpersonal relationship on the job/ congeniality of co-workers	3	12.5
Salary	6	25.0
Tasks	3	12.5
Other	1	4.1
TOTAL RESPONSES Number of Respondents = 22	24	100.0%

*20.9% of responses
**37.5% of responses

3. Other Issues Unrelated to the Immediate Job. Other issues of importance in career shift unrelated to the immediate job were elicited from a fixed-alternative question. The most important were change of interest (29.8%) and happenstance (21.8%), the latter, especially in the case of women alumnae (30.0%).

The prevalence of occupational shifts related to change in interests is a phenomenon which has forced reformulation of theory on the career stages in the life span of individuals. As Ginzberg (1972) points out, career choices are now seen as continuing over a period of a lifetime. Men and women compromise their preferences and the constraints of the work world by seeking the best occupational fit between their changing desires and changing circumstances (1972).

This represents a marked shift from Ginzberg's earlier view (1951) that occupational choice is a decision-making process that ends in the later teens or early 20's when the individual makes a definitive commitment. The subjects in our study have provided affirmation of this viewpoint when a large number of the occupational shifters specified that change of interest played a prominent role in their decisions (Table 40). Almost 30 percent (29.8%) of the responses pertained to this point. However, another group of shifters indicated that their shift could not be conceived of in purposive terms. Almost 22 percent of the responses (21.8%) concerning important factors in career shifts unrelated to the immediate job indicated that happenstance played an important role.

TABLE 40

IMPORTANT FACTORS IN CAREER
SHIFT UNRELATED TO IMMEDIATE JOB

	N	%	N	%	N	%
More income needed	91	46.4*	30	45.4*	121	46.2*
Change in interests	57	29.1	21	31.8	78	29.8
Poor prospects promotion in former field	57	29.1	12	18.2	69	26.3
Happenstance	37	18.9	20	30.0	57	21.8
Good prospects/outlook in new occupation	46	23.4	6	9.1	52	19.8
Avoid relocation	29	14.8	2	3.0	31	11.8
Poor labor market	23	11.7	4	6.1	27	10.3
Divorce/separation/health	14	7.1	7	10.6	21	8.0
Discrimination/job or other	5	2.6	3	4.5	9	3.1

*Percentages are based on number of respondents.
N of Males = 196 N of Females = 66 Total = 262
Total Number of Responses = 380

TABLE 41

PRIMARY MOTIVATING FACTOR UNRELATED TO IMMEDIATE JOB

Motivators*	N	%
Growth, possibility of professional	28	13.5
Gratification of the work	27	13.0
Recognition	14	6.8
Responsibility, increase in	11	5.3
Promotion, prospects poor	9	4.3
Other motivators	7	3.4
Hygienic Factors (including salary)**		
Working conditions, control of time, lifestyle	43	20.9
Interpersonal relationships on the job/congeniality of fellow workers	12	5.8
Security, job/tenure	9	4.3
Other hygienic factors	1	0.5
Salary	19	9.2
Change in interests	16	7.7
Avoid relocation	3	1.4
Other	8	3.9
TOTAL MENTIONS Number of respondents = 145	207	100.0%

*46.3% of responses
**40.7% of responses

This self-perception of occupational shift is in line with the views of those who see career decisions as frequently being influenced by events and the immediate needs within particular choice situations in which individuals find themselves. While the adventitious nature of such choices are of no theoretical interest, they are too prominent to be ignored. Such choices are described by Katz and Martin (1962) as being non-rational, spontaneous, and based on situational pressures. Situational contingencies are seen as determining choices which are narrow. Such choices also fall in the category described by Caplow (1954) who concluded that the bases for career decisions are often trivial. A friend's entry in a particular job or occupation, for example, might be the determining factor in the career decision. A number of alumni wrote extensive comments on the non-rational or not-to-be-foreseen nature of certain critical career decisions as a concluding comment on the original JCQ.

A number capsulized their characterization on the nature of their own particular career decisions as "new directions occuring by reason of being at a certain place at the right time.' Others expressed themselves more abstractly, objecting to assumptions implemented in the JCQ items that career decision-making was planned and process-related. These participants in the study rejected the Ginzberg approach which stresses purposiveness. They did not recognize the description of careers as being logical outcomes of a process involving early decision-making, appropriate educational preparation, and subsequent absorption into a predictable career track (Ginzberg, 1951).

Neither does this group accept the revised Ginzberg theory of career development which provides for continuing appraisals and reappraisals of career goals throughout the career life-span. The respondents to the RCQ may be seen as documenting the many spontaneously offered comments on the earlier JCQ when they indicated the importance of happenstance in their career change. Nevertheless, the relative importance of both change of interests and the turns and twists of life events characterized as happenstance and more specific motivations remains unclear. Few respondents mentioned these matters when asked to specify the primary motivating factor for occupational change unrelated to the immediate job. As reported, this was described largely in terms of motivating or hygienic factors. Very likely respondents who saw themselves as reacting to opportunities which appeared happenstance made the occupational shift for reasons expressed in terms of the motivators or hygienic factors (especially working conditions and salary). Those who reported change of interests as important in the decision to change unrelated to the immediate job may have made the change to satisfy needs which they then went on to describe in terms of the motivators and hygienic factors.

4. Outcomes of Occupational Shift. Further insights into motivation for occupational change come from the material submitted by the alumni on the meeting of their expectations. As stated earlier, the subjects who responded to the RCQ are essentially satisfied concerning the outcome of their career changes. Sixty-nine percent of both men and women indicated that their expectations had been met to a high degree. Only a very modest number (12.1%) reported a low level of realization of expectations (Table 42).

TABLE 42

LEVEL OF REALIZATION OF EXPECTATIONS

	MALE		FEMALE		TOTAL	
	N	%	N	%	N	%
Low	25	13.4	5	8.1	30	12.1
Medium	32	17.2	14	22.6	46	18.5
High	129	69.4	43	69.3	172	69.4
TOTAL RESPONSES	186	100.0	62	100.0	248	100.0

Number of Respondents = 186

The high level of satisfaction was elaborated upon by respondents in their evaluations of aspects of the occupations they left as compared to the occupations changers moved to. HRC used eleven of Herzberg's twelve variables contained in the two-factor theory of motivation[37] as a framework for this analysis (Table 43). The results reaffirmed two previous findings: 1) that the occupational changers who participated in the study see their change in a highly favorable light, and 2) that the group of variables termed motivating factors by Herzberg are more important for this college-educated population than are the hygienic factors. This second finding is largely in line with Herzberg's hypothesis concerning worker motivation. However, in one aspect, the alumni response differed from Herzberg's model. This is in relation to salary.

As may be seen on Table 43, over half of the occupational shifters felt they had improved themselves in regard to the variables Herzberg labels positive motivators. Most often mentioned as offering more gratification in the new job were opportunities for professional growth (63.4%) and increase in responsibility (63.3%). Very few respondents reported less gratification in regard to the six motivators (at most one in eight (12.8%)). However, the evaluations of the prior and later employment experiences in regard to the hygienic factors or dissatisfiers by this essentially satisfied group were quite different. With the exception of salary, which we have been treating as a hygienic factor up to this point, at most, only one-third of the radical changers reported a considerable increase in the quality of the hygienic factors. With one exception, about half of the radical changers rated the quality of the hygienic factors as being about the same in the new occupation as in the old. In view of the emphasis on personality in occupational decision-making (Holland, 1973), it is to be noted that over 60 percent (61.7%) of radical changers felt that level of rapport with fellow workers to be about the same in the new occupation as the former one.

In regard to salary, over half (56.8%) of the radical changers indicated that their remuneration represented considerable improvement over their previous situation. While it cannot be said that this report on salary improvement establishes income considerations as a motivator of

[37] Job security was omitted.

TABLE 43

COMPARISON OF RADICAL CHANGERS FROM PRIOR OCCUPATION WITH THEIR NEW OCCUPATION ON HERZBERG'S MOTIVATORS AND HYGENIC FACTORS

	Great Deal Less	Neutral	Great Deal More
Motivators			
Gratification of the work itself	8.7%	31.4%	59.9%
Advancement/promotion/ opportunity for	12.7%	31.8%	55.5%
Opportunity for professional growth	8.6%	28.0%	63.4%
Responsibility	8.7%	28.1%	63.2%
Achievement, opportunity for	6.7%	35.1%	58.2%
Recognition of achievement	12.8%	33.8%	53.4%
Hygenic Factors			
Congeniality of co-workers	9.4%	[illegible]7%	28.9%
Working conditions	13.6%	51.9%	34.5%
Supervision, quality of	28.0%	39.6%	32.4%
Effective employer policies and administration	29.0%	47.2%	23.9%
Salary	18.9%	24.3%	56.8%

Ns range from 176 to 243.

No significant differences between males and females except in the case of work gratification: 56.2% of the males as opposed to 71.9% of the females reported a great deal more satisfaction.

occupational change rather than as hygienic, it is interesting to note that the reported level of improvement in salary is about the same as perceptions of improvement in the motivating factors, i.e., opportunities for professional growth, level of responsibility, etc.

A further indication of the relative importance of the variables labeled motivating factors versus the hygienic is given by the expressions of benefits and costs of occupational change. This material was requested from radical changers as a culminating summary of thinking concerning the occupation changes under study. It followed a long series of questions on the various aspects of the occupational change which were experienced.

Over half of all the open-ended responses (51%) on benefits of change related to the positive motivators while only 27 percent of the responses related to hygienic factors. Further, almost half of the responses relating to hygienic factors concerned salary (Table 44, Part A).

Some differences appear in the perceptions of men and women as to benefits of change. Women tend to place more emphasis on the motivating factors in evaluating the benefits of change than do men (57.5% vs. 49.0%). Men, on the other hand, reported improvement in salary more frequently than women. While both men and women gave most prominent mention to increases in gratification obtained from the work (15.8%) and increased opportunities for professional growth (13.8%), this fact was especially so for women (18.1% vs. 15.0% and 18.1% vs. 12.4%, respectively). Women also reported more frequently to report increases in recognition than males (11.3% vs. 5.0%) men more often reported increased responsibility (7.2% vs. 2.2%) and improved prospects for promotion (5.8% vs. 3.4%).

Mentioned least often of all motivators as a benefit were increased opportunities for achievement (3.8%). This may be due to coder interpretation of responses to this open-ended question since all other responses imply greater opportunities for achievement existed in the new occupation.

Of the 27 percent of the responses concerning benefits of change, which fell in the category of hygienic factors, as mentioned above, 12.9 percent of the responses mentioned salary. Of the other hygienic factors, responses concerning working conditions (12.9%) were most numerous. As previously discussed, the importance relegated to this variable is due in part to inclusion of improvements in quality of life outside the workplace which occurred as a result of the change. Congeniality of co-workers and job security/tenure considerations each drew about 2 to 3 percent of the response. About 9 percent (8.8%) of the responses expressed gains from occupational change in terms of increased happiness. This was especially true of women (13.4% vs. 7.3%).

The evaluation of the costs associated with the occupational change which respondents experienced differs in emphasis from the thinking on benefits. It follows a similar pattern of differences as the findings on positive versus negative expectations of change. Only a minority of the responses concerning costs of change (24.5%) dealt with the motivating factors, while over half (55.7%) of all responses dealt with the hygienic factors, including salary (18.8%) (Table 44, Part B).

TABLE 44

BENEFITS AND COSTS OF OCCUPATIONAL CHANGE:
A CONCLUDING SUMMARIZATION

PART A

BENEFITS OF OCCUPATIONAL CHANGE

	Males		Females		Total	
Motivating Factors*	N	%	N	%	N	%
Gratification of the work	41	15.0	16	18.1	57	15.8
Growth, opportunity for professional	34	12.4	16	18.1	50	13.8
Recognition of achievement	14	5.0	10	11.3	24	6.6
Responsibility, increased	20	7.2	2	2.2	22	6.0
Promotion, prospects of	16	5.8	3	3.4	19	5.2
Achievement	10	3.6	4	4.4	14	3.8
Hygienic Factors**						
27.6% of all responses, including salary	39	14.2	8	9.0	47	12.9
Working conditions, including lifestyle, control of time, etc.	27	9.9	7	7.9	34	9.3
Interpersonal relations on the job/congeniality of staff	8	2.9	4	4.4	12	3.2
Job security/tenure	6	2.2	2	2.2	8	2.2
Happiness	20	7.3	12	13.4	32	8.8
Other	40	14.5	5	5.6	45	12.4
TOTAL RESPONSES Number of Respondents = 186	275	100.0%	89	100.0%	364	100.0%

*51.2% of all responses
**27.6% of all responses, including salary

TABLE 44

PART B

COSTS OF OCCUPATIONAL CHANGE

Motivators*	N	%
Recognition	19	9.1
Growth, opportunity for professional	13	6.3
Other motivators	19	9.1
Happiness	16	7.7
Tasks	13	6.3
Other	12	5.8
Hygienic Factors**		
Working conditions, control of time, lifestyle, etc.	48	23.0
Salary	39	18.8
Job security/tenure	24	11.5
Other hygienic factors	5	2.4
TOTAL RESPONSES Number of Respondents = 138	208	100.0%

*24.5% of responses
**55.7% of responses, including salary

TABLE 44

PART C

COMMENTS ON COST-BENEFIT RELATIONSHIPS

	N	%
No costs/no benefits	21	55.0
High costs/high benefits	5	1 .5
Costs/benefits unknown	12	31.5
TOTAL RESPONSES	38	100.0%

In assessing costs of change, the respondents most often mentioned the area of working conditions, including losses in quality of life outside the workplace (23% of responses). Almost a fifth of the responses (18.8%) related to losses in earnings and about a tenth to job security/tenure issues (11.5%). Of the near quarter of the responses relating to losses in the area of motivating factors, about 9 percent (9.1%) of the responses dealt with losses in the area of recognition of achievement and about 6 percent (6.3%) with losses in opportunities for personal growth.

About a fifth of all responses concerning costs of change were expressed in terms or concepts outside the framework of Herzberg's variables. About 8 percent (7.7%) expressed their feeling of loss in terms of being less happy while about 6 percent (6.3%) were dissatisfied with aspects of the functions which they were performing in a sense unrelated to work gratification (one of the motivators).

In summary, the occupational changers participating in this study displayed a tendency to discuss positive expectations and the benefits of the occupational shift in terms of Herzberg's motivating factors and costs associated with radical change in terms of the hygienic factors or dissatisfiers. This logically follows the findings on high realization of expectations mentioned earlier. For a sizable minority change of interests and happenstance played an important role.

While most respondents of the RCQ were willing to engage in discussion of both positive and negative aspects of their change, a small minority summarized their positions otherwise. Twenty-one respondents evaluated their change experience as having made no demands or costs, but also as having produced no observable benefits. Another very small group (5) reported their experiences as having been high in costs, but also in rewards. Another twelve respondents reported being unable to evaluate their experiences in terms of costs or rewards (Table 44,, Part C).

Chapter V

Conclusions and Policy Implications

The July-August 1979 issue of Change magazine is entitled "Education and Work, Two Worlds as One?: How the Colleges and Universities Can Serve Adults in Transition." The reference to transition in the title is careers in transition which is the primary focus of this research. Perhaps the most dramatic conclusion emerging from this investigation is that if we view the spheres of education and work, as well as the transition from job to job, from traditional interpretations of career and career change, it is more than one universe. However, from the perspective of the experiencing individual many multi-job changes and movement from education to work, to education or training, is not radical or drastic. In fact, in the latter case it is "one world" in which a common thread transcends change of job and/or employer. The extent to which this interpretation of our findings is substantiated, raises questions about how we label and define people in their career development at every age level of career counseling and planning in education and in the marketplace.

1. Implications of the Work History Data. The detailed work histories of the 1964-65 graduates of the large Eastern university studied indicate a great deal of "radical occupational" shifting over the time span of their work careers. In many cases, the careers of graduates forty-three years and under reported thirteen-fourteen years of work life. Older members of the study group have work histories of longer duration. HRC believes that the greater incidence of radical occupational change reported by HRC's study than in the Census survey of 1970 and 1978[38] may be explained by two factors: (1) the longer time span reported by HRC, and (2) the somewhat different definition of occupational change which was used.[39] HRC's definition includes shifts to practice in a drastically different environment or between the public and private sectors under certain cicumstances. This second difference in definition is not believed to account for the major portion difference in reportage. The much larger time span is.

Despite the extensive reportage of radical occupational change located throughout the work histories of college alumni population, forty-three years and under, we have no normative base for determining how much change is, in fact, occurring. The definition of radical occupational change adopted was based on the assumption that DOT codes for most professional, technical, and managerial job titles represented a unique group of

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[38] Published by the Bureau of Labor Statistics.

[39] Another difference between HRC data and BLS data is that the former is based on changes in DOT codes, subject to certain circumstances in the work history, while BLS data is based on Census codes.

tasks, skills, and/or acquired experience which required considerable investment on the part of the occupant. It was also believed that specific educational preparation was required for most of the job titles, but this was not included in the definition of occupational change because it was decided to test this assumption. In a small number of instances, drastic changes of environment in which the professional/technical/or managerial practice took place were considered radical occupational change. This part of the definition was included for both substantive and programmatic reasons.[40]

In light of the empirical analyses of work histories and experiences in dealing with DOT codes in the course of this study, the assumption that changes in one or more digits of the DOT codes for professional/technical/ and managerial personnel constitutes occupational change seems spurious. The data did not demonstrate that the changes made were linked to additional education, including the obtaining of a credential for the purpose of overcoming barriers between occupations. We believe that much of what is being counted in surveys as occupational change consists of movements across artificially constructed boundaries, i.e., occupational titles which are misleading in that they, the occupational titles, are not necessarily associated with specific training or educational programs and/or a unique set of tasks and/or skills associated with the occupation (job titles) as is assumed. This is not the case in many instances. A full sixty per cent of the respondents to the RCQ support the inference above by rejecting our designation of a specified job shift in their work history as having been "radically" different in nature.[41]

From the insight gained in working with the employment histories of

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[40] Drastic change in environment, including movements between public and private sector, was included as a type of radical change because of the emphasis on environmental press as a factor in occupational change in the literature (Ritzer, 1972; Holland, 1973; Gross, 1964 and 1967; and Andrews, 1973). Ritzer, in particular, has pointed out the inherent conflicts which professionals face when they enter bureaucracies of which the public sector is the largest. Pragmatically, drastic change in industrial work environment (change in SIC "family") was used to differentiate certain types of upward mobility from occupational change.

[41] Comments were received to the effect that the new occupation was in the same field, involved the same tasks, or required the same background. Observations of self-designations of radical change often differed from HRC's designation. Often the self-designated radical change involved drastic change in work environment, i.e., a hospital-based nurse moved to public health nursing (same DOT code); a professional manager moved from vice-presidency of a printing firm to presidency of a textile manufacturing plant, etc.

professionals and managerials in this data pool, we believe that the excessively high reportage of occupational change stems from factors such as the following:

1) Movements between teaching and doing in the same field. For example, the architect or engineer who shifts to teaching his subject in a university.

2) Movements between professional and managerial positions in the same field. For example, engineer becomes manager of a department in same firm or field. Inquiry with BLS revealed that no policy exists as to whether such titles should be coded as professional or managerial.

3) Movements between professional and sales and managerial job titles in the same field. The correct coding, usually, but not always, shows up as occupational shift into the non-professional sales category,[42] i.e., as a radical occupational change with downward mobility indicated. In fact, in many instances, movements into sales positions were followed by moves into high level managerial job titles including vice-presidencies.

4) Different code numbers for occupations "not elsewhere classified" than for the occupations to which the n.e.c. group relates. Some distinctions in titles do not appear to represent full-fledged occupational differences.[43]

5) Patterned movements of certain personnel between particular industrial environments resulting in job title change which imply occupational change. Prominent examples are movements of lawyers into non-legal job titles in finance, real estate, and insurance; movements of data processing personnel from business services (data processing) into manufacturing enterprises with resultant job title change, but similar functions.

6) Movements between public and private sector employment often results in acquisition of a different DOT code though the occupation may be the same. Some similar differences have also been observed in the Census Codes.

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[42] In this particular instance, HRC eliminated such cases as instances of occupational shift.

[43] Technicians present a special problem when the DOT codes are used to designate occupational change as they usually bear the same DOT code as the occupations to which they relate. This does not appear to be a problem in use of the Census Codes as separate codes are available for technician positions.

We see reasons other than the purely technical ones above for questioning the extent of occupational change reported. Examination of work histories containing radical occupational changes, as defined by our rules, suggests that professional and managerial personnel are moving across occupational boundaries (i.e., three digit DOT codes) with remarkable frequency without evidence of additional investment in education or severe difficulties in performance or psychological adjustment. The frequency of changes and the apparent ease by which they have been to lead to the conclusion that the uniqueness of many occupations (operationally defined by three digit DOT codes) may be overrated.

2. Implications of the Educational History Data. The study findings indicate that radical changers and non-changers are likely to have received approximately the same amount of education in similar fields of study. These results are surprising in light of the body of literature on higher education which concludes that investment in education tends to preclude occupational change. The greater the time and commitment investment, the more likely the individual is to seek a "return" on that investment by pursuing a career in the prepared-for occupation.

The present study results demonstrate, however, that radical changers have pursued educational investments similar to those of non-changers. One possible explanation for this finding is that the traditional notion of investment in education is offset by the phenomenon of radical changers' returning to school for additional education. The data from the present study demonstrate that radical changers are significantly more likely to pursue additional higher education after they have worked in an occupation full-time for at least one year.

It is essential then that institutions of higher education be prepared to meet the needs of those students returning in order to negotiate better an occupational change. Assessment of their educational needs rests essentially on an understanding of the nature of occupational change. As this report has discussed, much of the radical change identified by the study may be more apparent than real. It is therefore necessary to examine first a conceptualization of change before addressing its educational implications.

A growing literature on the subject of adult development suggests that the notion of a single career path may be outdated. Drive (1978), for example, describes four different types of career lines: the transitory, the steady state, the linear, and the spiral. The steady state concept refers to a view of careers in which one makes an early commitment to a field and holds to it for life; the linear career concept embodies the notion that a career is a series of upward moves within a field. Both of these then conform to the idea of a lifelong career in one field only. The transitory and the spiral concepts, however, include occupational change. In the transitory concept, choices are being made very frequently with major changes in direction, perhaps every one or two years. The changes are mainly lateral, and are often viewed by outsiders as directionless or chaotic, although there is usually some consistent motivating factor for the changes.

The spiral career concept is the most interesting to examine in conjunction with occupational change. The career is seen as a cyclic process in which one changes field or major direction in cycles of about five to ten years. There may be upward movement within a cycle, but the shift between cycles is often lateral. Again, an underlying theme or rationale can usually be identified in these movements, one which is more readily apparent to the individual than to others examining the individual's career. Indeed, Driver argues that spiral movement is increasingly common within organizations and that the organizational structure itself may facilitate such shifts.

Driver's model suggests that individuals with spiral career paths may develop re-education needs at several different points in their careers. Some of these needs can be met only by on-the-job training and education provided directly by the employing institution; others can only be met by formal course work in colleges and universities.

Radical changers who return to graduate school as part of making an occupational change represent one end of a continuum from formal to informal re-education processes. It is generally assumed that individuals return to school primarily to acquire necessary credentials and to develop skills and abilities needed for the anticipated occupation. Findings indicate that the majority of radical changers who returned to school rated the contribution of that education to their new occupation as high both in credentials and in skills and abilities.

3. Education and Work: The Common Thread That Binds. We conclude that the combined educational backgrounds and work experiences of respondents have been sufficient to enable many to make a wide variety of seemingly radical occupational changes without benefit of additional education or formal training. This is true of movements between highly technical fields as well as the "softer" professions. It is also true of movements between technical positions and managerial ones both in the same and other fields. Thus, physicists and mathematicians move into the data processing field using computer programming as their entry. Engineers, chemists, social scientists become executives moving progressively farther away from purely professional functions as they move up the managerial ladder. Sometimes this rise is interrupted by a period of service as "staff scientist" or "senior scientist", ambiguous titles which may indicate emphasis on professional expertise or on managerial roles,[44] but which are counted as occupational change.

It has long been known that many lawyers never practice law, but build careers in other fields following graduation. Whether the lawyers in the HRC sample were able to enter finance, real estate, and insurance on the strength of undergraduate business degrees is unknown at this time. They also have demonstrated the capacity to work as advisors for politicians on the state and national levels as political strategists, as members of investigatory commissions, and in many other capacities for which no specific training exists. These are counted as radical occupational changes.

[44] Certainly these titles give coders problems and are illustrative of the kind of title which results in inconsistent coding and miscounts of occupational change.

Alumni in the "softer" occupations, especially women, engage in considerable movement over occupational boundaries. Teachers may also designate themselves as writers or as editors at certain points in their careers. They may work part-time for periods as saleswomen or open a shop and be classified as entrepreneur. The women in the population studies have engaged in a great deal of work, often part-time, at "this or that" which is not taken seriously as being part of their "career", but more as employment until home responsibilities lessen so that serious career-related studies or employment can be undertaken. These jobs, part-time and full-time, nevertheless, are counted as career changes.

Alumni in the arts, including literature and theater, often reported employment in other than their occupation for purposes of earning a living. Their movements between the other occupations tend to be counted as occupational changes though they do not represent the occupational-identification or investments of the subject.

After discarding cases of occupational change attributable to superiors or are more apparent to real change, HRC has concluded that professionals and managerials are crossing occupational boundaries at one or more points in their careers with greater ease than customarily thought possible.[45] This appears true for the more technically trained as well as the less, though at a lesser rate. The implications are: (1) that the transferability of skills and abilities acquired through higher education and work experience are greater than usually thought, and (2) the uniqueness of professional, technical, and other skills associated with particular occupations is less than usually assumed. There appears to be a high degree of commonality of tasks as well as prerequisite skills between many seemingly different occupations which make transfers possible without major investments in formal education or training. Part of the ability to cross boundaries may occur because many professionals and managerials involved are engaged in organizational and decision-making types of activities at the time of radical shift. Purely technical expertise may not be so important at this level. It is to be recalled that many of the transferable skills mentioned by radical changers as facilitators of shift were people-management skills, sociability, and general organizational and management skills. However, HRC has no evidence that the enabling skills were limited to "soft" skills. Many shifts which do not involve managerial-type job titles were between two technical fields.

In raising the possibility that formal preparation for many technical and non-technical fields includes generic bodies of training sufficient to permit movements across occupational lines we see an implication is that many occupational boundaries represent barriers or shelters rather than intrinsic uniqueness. The emphasis of radical changer respondents on commonality of tasks and a "common thread" between their two occupations lends credibility to this hypothesis. HRC, at this point in its evaluation of data, cannot specify which educational programs permit more or less career flexibility. It can be stated that technical and professional educations do not necessarily lock recipients into pre-destined career tracks. The evidence of this study is that a great variety of career paths are possible for educated personnel who wish to move off a conventional

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[45]These comments pertain to the careers of the prime age group of respondents 43 years and younger at the time of the survey.

career track for the occupation of their initial training or experience.

This raises the question of how radical changers view their work histories. HRC raises the possibility that many of these alumni do not view themselves as having disrupted, as opposed to orderly careers. Many see a common thread between their two occupations. Perhaps there is a need to reappraise our thinking concerning the nature of careers. Possibly the definition of an "orderly career" should relate to the individual's self-concept of life goals and the role of work within those perimeters rather than conventional concepts of what an expected "career track" for a given type of training and initial work experience should be. The definition of a "disrupted" career, in this light, would relate to interferences and barriers in the work world to the individual's life goals expressed in terms of his employment-related activities and aspirations. In this frame of reference, work milieu would be occupation as well as industry.

The evidence produced in this study is that many individuals have the capacity to move across occupational boundaries and have done so. Sometimes the moves have been interpreted by the players as reactions to advantageous career opportunities which presented themselves: others have been explained in terms of meeting personal needs or better put for purposes of self-actualization. Finally, it is clear that the concept of expected "career track" for a given educational program, profession, or initial body of work experience is too narrow. Many different types of careers can stem from a given education or initial work experience. The critical factor appears to be the dynamic interplay of the individual personality with education, occupational experiences, and industrial and physical work milieu overtime. This study has produced evidence that the multi-track career (Miller and Form, 1964) is more prevalent than is indicated in the literature. The majority of radical changers among the university and college graduates in HRC's sample do not see their career shifting as aberrant behavior. They repeatedly referred to continuities between the occupations they left and those they entered.

It must be added that many of the participants work in industry and business where occupational boundaries have never been as clear as in the established professions (law, medicine, the clergy) though we found punctures in the boundaries of these occupations. In fact, the validity of counselors advising young people that liberal arts or "general education" necessarily leads to greater career flexibility than technical or specialized education is to be questioned from the results obtained in this study. Finally, we report some concluding thoughts about careers and career advising related to our findings.

4. Final Notes About Careers and Career Advising. Super (1957) has theorized that changes in career direction are most often in the direction of increasing person-occupation synthesis. This perspective is corroborated by the work of investigators using the case history approach to study individuals making major occupational changes (Laserson, 1973). In Laserson's case histories a pattern emerges in which the person who has made a major occupational change reports that he or she feels less "schizophrenic." For example, an executive who formerly commuted over miles of freeway had symbolically and literally chosen to separate his home

and work lives. Or when an executive became a real estate salesman and investor, he preferred to work in a small office very near his home and to include his family as much as possible in his work and in his decision-making. Similarly, as this report has discussed, Schein (1978) developed the concept of career "anchors" which can be used to understand seemingly dramatic career changes as only a slight variation on a person's central career theme. Also, Anne Roe (1956) identified eight groups of occupations according to their "focus of activity." The result of Roe's study on career change clearly suggests that job transitions are orderly rather than random. In her study, 68 percent of the changes made consisted of moving from position to position within one of the eight categories.

As mentioned earlier this study also discovered that most radical change respondents perceive the existence of a "common thread" between their occupations. Instead of feeling that they have themselves made a radical change in changing occupations, a more frequent response is to view the change as adapting new activities or functions into an already existing framework of the respondent's concept of his or her career. Furthermore, Broom and Smith (1963) introduced the concept of certain "bridging" occupations, i.e., occupations that provide work experience that facilitates movement from one occupational field to another. While radical change respondents did not articulate this concept as precisely as Broom and Smith, clearly many radical changers do view certain positions as interim steps in a progression of changes in career. From a reading of respondent work histories (including the qualitative data and comments) it becomes clear that part-time employment or even volunteer work is often used as part of occupational transition. When part-time and volunteer work are excluded from the work history (which was necessary in formulating the definition of radical change), a shift from one full-time job to another will appear more radical than it would with the missing pieces of information provided, and certainly than it would to the individual experiencing the change.

Part of the challenge to colleges and universities to address the needs of students who return in order to make an occupational change thus lies in providing some anticipatory socialization into the new occupation, but also recognizing the individual's need to incorporate that occupational identification into his or her own personality and to discovering the campatibility between the two. Becker and Carper's work assumes the model of a younger, less formed student who readily assimilates the ideology of the anticipated occupation.

Our results clearly point to the impatience of the individual who returns to school with a curriculum which is too theoretical and materials arbitrarily assigned by professors who do not understand the practical demands of future occupations. Expression of the need for a curriculum more tailored to this practical orientation suggests that programs which combine course work and actual work experience would be the most valuable for the returning student. If the student is changing fields, then an internship program could acquaint him or her with the actual practices of the new occupation.

A further trend in higher education is an increasing tendency by professional groups to raise certification requirements to practice

particular specialties. Individuals in certain fields (most notably the health, social-service, legal, and others threatened with a surplus of qualified personnel) will have to return to school in order to stay in their present occupations, rather than in order to change occupations (Arbeiter, 1979). Although data from the present study show that the radical changer is more likely to return to school, in the future, changers and non-changers alike may be pursuing additional education for different purposes. The student returning to school for credentialling purposes in the same field could greatly profit from a program in which current work experience is combined with course work. (See Mitchell's Paris paper for elaboration of a specific suggestion for a combination work and course work program.)

This investigation shows that women in particular are prime candidates for returning to school. There is little career activity to date among the women sampled; however, questionnaire responses (some of which were quite lengthy "Additional Comments") indicate that for many this is a period in which they are considering future career possibilities. Whether or not they will actually pursue these possibilities remains to be determined. Some colleges and universities have very successfully initiated transitional programs for women who wish to return to school, and eventually, to work. These programs differ in format and content, but they are usually directed toward the objective of easing the woman's return to school and giving her an opportunity to explore career options before actually committing to study in a particular curriculum.

Clearly one of the most important variables for any adult returning to school is that of financial support. Clopton's (1973) comparison of 20 men ages 30-55 who returned to school to pursue an advanced academic degree and 20 men in the same age group who expressed a desire to return to school but did not, found that the most powerful explanatory variable for the differences in behavior in the two groups was the availability of financial support. Orth (1974) included financial security as a critical "positive factor" in precipitating mid-career occupational changes among males. He believes that it is no coincidence that changes in occupation are undertaken at a time when a man is becoming financially independent or is relatively more free of childrearing and educational expenses.

Finally, the present study also points to the importance of financing as a major contributing factor in the experiences of those radical changers who returned to school. Clearly no study of motivations to return to school can overlook this factor in favor of psychological explanations. The issue of financial support is thus critical both to colleges and universities and to organizations which wish to encourage employees to return to school. If a college or university wishes to attract adult students certainly counseling and curriculum revisions are in order; but the first priority should be to examine and, if possible, to expand present financial support for these students.

Appendix A

Type 1 Radical Change

The first type of radical change includes: (a) Movements from the non-professional categories (DOTs 200-999) into the professional/ managerial/technical category (DOTs 001-199); Movements into the administrative categories (DOTs 162-188 and 189) are excepted unless the SIC (Standard Industrial Classification) family changes; (b) Movements between the field of education (090) and any other occupation; (c) Movements from professional and technical categories other than education (DOTs 001-199 with the exception of 090-099) and the administrative categories (DOTs 162-188 and 189) under the specified conditions relating to SIC numbers; (d) Movement from the administrative categories (162-188, 189) into any other DOT.

Essentially the Type 1 change identifies the most drastic shifts made by respondents while acknowledging that movements into administrative job titles often represent normal career progression, whether from a previous non-professional (200-997) or professional job category. Cases in which radical change is involved are located by specifying that movements into administrative categories accompanied by drastic change in type of industrial setting in which the new position exists be considered radical change. Thus a security analyst (DOT 020) who moved into biology (DOT 041) would be considered a radical changer, but if the same security analyst moved into an administrative position such as "vice-president, savings and loan corporation" (DOT 186, SIC 671) the move would be considered normal career progression. The SICs of both employers (bank and savings and loan corporation) are in the same SIC "family" (Finance, Insurance, and Real Estate, 601-679). If the same security analyst, however, moved in an administrative position in the manufacturing field (SIC family 201-399), such a shift is considered radical change since the SIC families relating to the industrial milieu change.

Type 2 Change

The second type of radical change consists of changes in professional categories in Group 4, i.e., jobs in the professional or technical, but not managerial and not in or out of the field of education. Additional exceptions are movements within the nursing and nurse-related group (DOGs 075, 078, 079) and movements within the law-related group (DOTs 110, 111, and 119). This includes movements between "law clerk," "attorney," "law partner," and "judge." Architectural draftsmen, mistakenly coded 017 have been recoded 001 (architecture) and are also excepted.

Examples of Type 2 changes are engineers who have shifted from chemical to civil engineering, to one of the agricultural sciences, or to any other professional or technical occupation other than the exceptions mentioned above.

Type 3 Change

A third type of radical change consists of changes made between the public sector of the economy (SIC family 910-970) and the private sector

(any other SIC family) when both jobs are in professional or technical, but not managerial field, not in the field of education or in a non-professional/technical/managerial category. In other words, Type 3 changers are those who belong in Group 4 (DOTs 001-089; 100-161 or 190-199) who change sector.

Type 3 change, essentially change of industrial sector of professionals and technicals other than educators and professional managerials, were included as a type of radical change in the belief that different career expectations and prospects faced occupants of similar professional job titles. For example, the career expectations of a chemist concerning such issues as criteria for promotion, pensions, or relocation are likely to differ sharply for government careerists and those outside the private sector.

Radical change status upon change of sector was afforded to radical changers in Group 4 only on pragmatic grounds. Movements of non-professionals/technicals/ and managerials (Group 1) between non-professional/technical/managerial sectors are not of interest in this study. All education-related occupations (Group 2, DOTs 90-91) have non-public sector SIC codes and these automatically are considered to be private sector employment. Many managerials and administrators (Group 3) in the public sector have DOTs which themselves indicate public sector status. Group 5 occupants were not included as they are believed to be exclusively private sector personnel.

Type 4 Change

The final type of radical change, Type 4, consists of people who have moved in or out of a catch-all DOT category, 189, which includes widely divergent groups. In many instances top management, presidents and vice-presidents and directors are assigned this DOT code as are consultants. The Human Resources Center has also assigned individuals who are entrepreneurs and/or self-employed to this DOT code in the belief that it was the most appropriate code in usage. Movement in or out of DOT code 189 is considered radical change only when the industrial setting in which work takes place changes drastically, i.e., a change in SIC family must accompany the movement in or out of DOT code 189 for the job change to be considered radical.

Appendix B

Details of Exclusion and Inclusion Rules Concerning Identification of Radical Occupational Shifts in Work Histories

HRC excludes Military Service (DOT 378-SIC 971) equal to or less than 48 months as part of the careers of its population. This is relevant to the work histories of members of the Classes of 1963-65, many of whom served in the Vietnam War and some in the Korean War. This exclusion of non-career work experience can be done by computer. Also excluded, but not by computer, is service in the Peace Corps, in VISTA, or in other volunteer work. No satisfactory means, using available DOT and SIC codes, was found by which these experiences could be eliminated by computer. In any further study this could be handled by assigning an unused DOT code to all volunteer experiences.

HRC also excluded the following special cases from consideration of radical change:

1) All movements between law clerk, attorney, and judge. The title "law clerk" presents a problem in that it always occurs in a public sector setting and, when the occupant moves to private sector law practice, a radical change is indicated (a Type 3 change, explained later). Exclusion is achieved by collapsing codes for lawyer and judge into one code (110). Cases with "law clerk" must be removed manually.
2) Movements of "salespersons" or "sales representatives" (DOT codes 250-279) in or out of administrative and managerial positions (Group 3, described below) DOT codes 162-169; 180-183 or Group 5, DOT 189) unless accompanied by a change in SIC family. This was found to be necessary as DOT code designations of "salespersons" is not in keeping with HRC observations of the presence of such job titles in the job sequences of highly trained professional and managerial personnel in its data set. For example, many engineers or data processing people in the pool move into the "sales rep" title and then on to a vice-presidency. This problem could be dealt with in future studies by assigning unused numbers in the professional/managerial/technical category to professionals or managerials involved in the sales function.
3) Movements of nurses (DOT 075) to technician positions (DOTs 078-079) and vice versa.
4) Movements from all trainee, internship, social work placements, residencies, fellowships, and administrative internships when the change takes place in the same field. This rule can only be implemented manually at present.
5) Movement from medical residencies and internships (DOT 070) to teaching medicine (090).
6) Movements of the traditional "free standing" professionals from employee status to self-employment.

All physicians, dentists, vets, lawyers, accountants, architects, and certain other professionals were consistently coded by DOTs of their professions rather than as entrepreneurs or self-employed persons (DOT 189). This covers instances where doctors report titles as president of a private medical clinic or attorneys report job titles as partner or co-owner of a law firm or private practice.

We include as evidence of radical occupational change movements between job titles "school teacher," (091 or 092) and "counsellor" (045) on the basis that functions differ.

Exclusions to Rules on Identifying Substantial Jobs

Only jobs held full-time one year or more were included in identification of radical occupational shifts in the work histories. Such jobs were labeled "substantial jobs." A single exception was made to cover the case of academics who report working 48 months or more in academia on a part-time basis. This was done to provide for inclusion of a potentially important group of radical changers who conceivably spent a number of years trying to obtain an academic foot-hold and who finally gave up and moved to another field.

An exception to the requirement that a job be held one year or more was made for persons whose occupations customarily include fewer than 12 months. This was applied to the case of educators whose work-year was reported as 9 months or more, but less than twelve.* Also,included are persons in education-related occupations.

*This is in line with Civil Service practice.

Appendix C

Composite List of Transferable Skills Identified by Conference Participants*

Intellectual/Aptitudinal	Interpersonal	Attitudinal
Communicating (44)	Working with, getting along with, or relating to others (28)	Dilligence, or a positive attitude toward the value of work (11)
Problem solving (17)	Managing, directing, or supervising (13)	Receptivity/ flexibility/ adaptability
Analyzing/assessing (15)	Empathizing, or being sensitive to others	Determination/ perseverance
Planning/layout (14)	Teaching, training, or instructing	Acceptance/appreciation/concern for others
Decision making (13)	Counseling	Responsibility
Creativity/imagination/innovation	Motivating	Willingness to learn
Problem identification/definition	Gaining acceptance, or building rapport	Ambition/motivation
Managing one's own time	Helping, or cooperating	Self-confidence
Basic computation	Cultivating cooperation	Self-discipline
Logical thinking	Selling	Pride
Evaluating	Accepting supervision	Enthusiasm
Ability to relate common knowledge or transfer experiences	Delegating	Patience
Coping with the labor market and job movement	Instilling confidence	Self-actualization
Understanding others	Team building	Assertiveness
Synthesizing		Honesty
Marshalling available resources		Loyalty
Accommodating multiple demands		Reliability
Judgment		Risk taking
Foresight		Compromising
Trouble shooting		Kindness
Job awareness		
Mechanical aptitude		
Typing		
Accounting		
Implementing		
Self-understanding, awareness, actualization		
Situational analysis		
Assessing environments/situations		
Understanding human system interactions		
Organizational savvy		
Conceptualization		
Generalization		
Goal setting		
Controlling		
Quantitative thinking		
Dealing with work situations		
Finance		
Tool usage		
Bookkeeping		
Artistic ability		
Business sense		
Tolerance of ambiguity		

*Items are listed in approximate order of frequency within each category. Most frequently mentioned items are followed by a figure in parenthesis to indicate relative frequency; thus, "Communicating" was mentioned about 44 times as often as "Tolerance of ambiguity."

Source: Wiant, A.A., Occupational Change and Transferable Skills: The Employers' Viewpoint, Columbus, Oh.: The Ohio State Univ., The Center for Vocational Education, 1977.

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